

# South African Medical Journal

## Suid-Afrikaanse Tydskrif vir Geneeskunde

P.O. Box 643, Cape Town

Posbus 643, Kaapstad

Cape Town, 13 September 1958  
Weekly 2s. 6d.

Vol. 32 No. 37 Deel 32

Kaapstad, 13 September 1958  
Weekliks 2s. 6d.

### DIE BAL-EN-POTJIE ENKELGEWIRIG

ANDRÉ ROUX, M.B., Ch.B., F.R.F.P.S., F.R.C.S. (EDIN.), Kliniese Assistant in Ortopedie, Karl Bremer-Hospitaal, Bellville, Kaap

Hierdie seldsame aangebore afwyking is die eerste keer beskryf deur Lamb (Mei 1958)<sup>1</sup>. Hy rapporteer vanaf Edinburg 5 gevalle van hierdie toestand en ek wil nou 'n geval—die sesde—rapporteer.

Op 6 Januarie 1958 het ek 'n blanke seun, 9 jaar oud, by ons buitepasiënte-afdeling gesien. Die seun is deur sy ouers gebring weens 'n aangebore verkorting van sy regterbeen. Radiologiese been-lengte plate het 'n verkorting van  $\frac{1}{2}$  duim getoon. Inversie- en eversie-bewegings van die voet was vol. Die roëntgengram van die enkel (Fig. 1) het 'n bal-en-potjie gewrigsoort getoon. 'n Laterale plaat van die voet (Fig. 2) toon talo-navikuläre fusie sowel as fusie van die proksimale deel van die vierde en vyfde metatarsale bene. Inversie, eversie, fleksie en ekstensie vind dus plaas in die enkelgewrig. 'n Roëntgengram van die

knieë het 'n hoogliggende kop van die fibula getoon. Die kop was bokant die proksimale epifese van die tibia (Fig. 3).

Die bevindings in hierdie geval is in ooreenstemming met dié beskryf deur Lamb. Volgens hom het al 5 gevallen van hierdie afwykings gehad, waarvan 3 aangebore been-verkorting was en 4 het fusie van sommige van die voetbenne getoon. Lamb maak ongelukkig nie melding of die fibuläre koppe in sy gevallen hoogliggend was nie. Dit is moontlik dat hierdie afwyking ook deel van die algemene prent is van 'n aangebore kort been.

My dank aan dr. R. Kotze, Mediese Superintendent, Karl Bremer-Hospitaal, Bellville, Kaap, asook aan dr. Hamilton Bell, hoof van die afdeling Ortopedie, vir hul toestemming vir publikasie van hierdie artikel.

#### VERWYSING

- Lamb, D. (1958): J. Bone Jt. Surg. 40B, 240.



Fig. 1. 'n Bal-en-potjie gewrigsoort van die enkel.

Fig. 2. 'n Laterale plaat van die voet toon talo-navikuläre fusie sowel as fusie van die proksimale deel van die vierde en vyfde metatarsale bene.

Fig. 3. 'n Hoogliggende kop van die fibula.

### POLIOMYELITIS VACCINE

From reports in the Press it would appear that a misunderstanding has arisen regarding our statement on poliomyelitis vaccine in an Editorial in the *Journal* of 6 September 1958 (32, 885).

We stated in our Editorial that an Expert Committee of the World Health Organization had expressed a strong opinion that the time had come when controlled field trials of live-virus polio vaccine should be undertaken and that such trials should be supervised by an individual experienced in polio virus investigations with adequate laboratory facilities and the assistance of other

virologists as consultants. The Expert Committee, we said, had laid down technical criteria which it considered should be satisfied. We went on to say: 'it would appear that South Africa is well equipped to comply with the suggested conditions.'

These last words were an expression of our Editorial opinion. The Expert Committee did not make any such statement; and while we hold it to be a fact that the Union is in an excellent position to carry out a field trial of live-virus polio vaccine, we feel that we should make it clear that the World Health Organization Expert Committee did not say so.

# South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

## EDITORIAL : VAN DIE REDAKSIE

### NEW HEARTS FOR OLD?

It is less than 20 years since Gross and Hubbard<sup>1</sup> reported their first successful closure of a patent ductus arteriosus and cardiac surgery has come a long way since then. Congenital as well as acquired cardiac lesions are now tackled in centres all over the world. The techniques are becoming refined, especially since time is no longer the limiting factor it used to be. Induced hypothermia occupied the centre of the stage for a brief period but it is now giving way to the use of an artificial extracorporeal circulation. These 'artificial hearts' take over the circulation for a period long enough to enable the surgeon to work in a relatively bloodless field and to plan definitive and potentially curative (as distinct from palliative) operations. The development of the artificial kidney is an example of similar progress in a different field of medicine. By its use patients with temporary renal insufficiency have been granted a few additional days—sufficient to keep them alive until their own kidneys were able to take up their usual function again.

Human kidneys have even been successfully transplanted from one person to another. At present this can only be done in identical twins. One quails at attempting to assess the rarity of the occurrence of chronic renal disease in one of a pair of identical twins, the other being alive and well and willing to part with one of his kidneys. Yet such operations have already been done.<sup>2</sup> The difficulties of the surgical technique are not insuperable; wide applicability of the method is precluded by immunological obstacles. It is in this field where the most exciting things to happen in medicine for many a year are now taking place—curiously enough with almost a minimum of publicity. The implications of these advances are breath-taking.

The beginnings of these stories were very simple. In 1943 Medawar and Gibson<sup>3</sup> demonstrated that grafts from one individual to another were sloughed with increasing rapidity as the size and frequencies of the grafting was increased. The accelerated reaction to a second graft from the same donor demonstrated an underlying immunological mechanism. Ferrebee and Thomas<sup>4</sup> in a review of this subject point out that there appear to be two ways of avoiding these reactions of immunity. The first is embryological and the second radiological. The embryological mechanism is operative in identical twins. It is also applicable to inbred strains of animals. It occurs when, in cattle, vascular anastomoses exist between the placentae of non-identical twins. A somewhat similar state of affairs with the production of a human chimera has occurred in man.<sup>5</sup> It can be induced artificially in many species by the injection of cells into the embryo or, in the rodent, even during the first few hours of post-natal life. In these animals tolerance to the foreign antigens develop and permits successful transplants of other organs from the donor to the recipient animal.<sup>6</sup> A similar tolerance can, in some instances, be induced by radiation. The work is still in its infancy but in brief it implies giving potentially lethal doses of total body radiation adequate to destroy the mechanism for antibody production. At this

stage the animal is injected intravenously with foreign bone-marrow cells. Incredible as it may seem, these foreign erythropoietic, myelopoietic and to some extent lymphopoietic cells 'hommed' to their appropriate sites—bone marrow, spleen and lymph nodes. Here they multiplied and replaced the animal's bone marrow previously destroyed by radiation and now allowed the animal not only to survive but to take grafts from the donor animal. It was adequately demonstrated that the proliferating bone-marrow cells originated from the donor and were not the regenerating cells of the recipient.<sup>7,8</sup> Splenectomy and the use as ACTH may also assist in promoting acceptance of the 'transplanted marrow'. Grafts may also take in individuals who have afibrinogenaemia or even hypofibrinogenaemia.<sup>9</sup>

It was fairly logical to attempt a cure of leukaemia by this means.<sup>10,11</sup> Mice have been irradiated with a dose sufficient to destroy both the leukaemic and the normal cells. A proportion of the animals survived without evidence of leukaemia. Myleran has also been used. Bone marrow is not difficult to obtain, for even cadaver marrow may be used provided there is no more than 2 hours' delay after death of the donor before the marrow is collected. It can be stored in glycerol at -70°C, to be used later after removal of the glycerin ('marrow banks'). The method has been tried in man and primates with only partial success. A limiting factor is the tolerance of the gastro-intestinal tract to irradiation.<sup>11</sup>

Once these immunological problems can be overcome, the field will be wide open. Aplastic and hypoplastic anaemias may become curable, as may leukaemia and many varieties of malignant disease. But, more important still, organ transplantation on a vast scale will be feasible and one has only to let one's imagination wander to see where this may lead. No longer will one need to try to patch diseased organs—we can remove them and replace them with others. For so convinced are workers in this field that organ transplantation is virtually around the corner that they are already practising the techniques of the operations. The supply of organs will probably present little difficulty, particularly if organs can be 'stored'. People killed in accidents may perhaps not have died in vain. With a good supply of organs available for transplantation we might be entering an era of surgery as different from the preceding one as that which followed the introduction of anaesthesia. Far-fetched? Maybe, but by no means impossible.

1. Gross, R. E. and Hubbard, J. P. (1939): *J. Amer. Med. Assoc.*, **112**, 729.
2. Merrill, J. P., Murray, J. E., Harrison, J. H. and Guild, W. R. (1956): *Ibid.*, **160**, 277.
3. Medawar, P. B. (1945): *J. Anat.*, **79**, 157.
4. Ferrebee, J. W. and Thomas, E. D. (1958): *Amer. J. Med. Sci.*, **235**, 369.
5. Dunford, L., Bowley, C. C., Hutchison, A. M., Thompson, J. S., Sanger, R. and Race, R. R. (1953): *Brit. Med. J.*, **2**, 81.
6. Billingham, R. E., Brent, L. and Medawar, P. B. (1956): *Phil. Trans.*, **239**, 357.
7. Nowell, P. C., Cole, L. J., Roan, P. L. and Habermeyer, J. G. (1957): *J. Nat. Cancer Inst.*, **18**, 127.
8. Ford, C. E., Hamerton, J. L., Barnes, D. W. H. and Loutit, J. F. (1956): *Nature*, **177**, 452.
9. Good, R. A. (1955): *Amer. J. Dis. Child.*, **90**, 577.
10. Barnes, D. W. H., Corp, M. J., Loutit, J. F. and Neal, F. E. (1956): *Brit. Med. J.*, **2**, 626.
11. *Transplantation of Bone Marrow* (1958): *Blood*, **13**, 266.

## VERBINDINGSTELSELS

Die studie van die mens se pogings om afstande te oorbrug en met medemense deur spraak in verband te tree, is op sigself reeds interessant. Ons dink in dié verband byvoorbeeld aan die lang en moeisame pad wat die mensdom moes afle van die primitiewe tom-tom af tot by die hedendaagse radio- en telekommunikasie met televisietelefone en radiofotos.

Die belang van 'n bevredigende hospitaal-interkomunikasiestelsel blyk uit 'n spesiale artikel oorlangs in die *Lancet* gepubliseer.<sup>1</sup> Daar is 'n menigte besware teen bestaande stelsels wat hoofsaklik luidsprekers, klokkie, gekleurde lige of verligte nummers behels. Op voorstel van prof. C. F. W. Illingworth het genoemde skrywers 'n studie gemaak van radioverbinding in hospitale, en die ideale kenmerke van 'n hospitaal-verbindingstelsel is as volg gedefinieer: (1) Dit moet stil wees, (2) dit moet die aandag van die gesogte persoon trek, maar van niemand anders nie, (3) dit moet by elke punt in die gebou funksioneer en (4) dit moet geen aandag of kontras verg van die persone wat dit gebruik nie.

Die bestaande telefoondiens is bestudeer en daar is gevind dat 44% van die oproepe vir sale bestem was, 44% vir departemente en 12% vir spesifieke persone. Tydens die drukste tye is 1,700 oproepe gehanteer. Die tyd wat in beslag geneem is gedurende 200 oproepe, was 335 minute, bestaande uit 62 minute lui-tyd, 148 minute wag vir persone om na 'n telefoon toe te kom, en 125 minute is aan die

gesprekke gewy; m.a.w. 63% van die tyd wat deur telefoonoproep in beslag geneem is, is nutteloos wagtyd.

Die radiostelsel lui 'n klokkie of gonsklokkie in die sak van die persoon wat die ontvangstelsel dra. Elkeen het sy eie spesifieke frekwensie en die frekwensiesklusse in 4 verskillende industriële toestelle varieer van 2-15 kilosiklusse per sekonde tot 465 megasiklusse per sekonde. Die koste (in Engeland) van 'n eenheid varieer van £125 tot £475, en die koste van ontvangstoestelle van £18 18s. Od. tot £25 elk.

In 'n vergelyking tussen die ou metode en radioverbinding vind die skrywers dat waar slegs 30% van die oproepe binne 0-½ minute gelokaliseer kon word, byna 60% in hierdie tyd per radio-oproep gelokaliseer kon word. Alle geneesherre hoof nie met die stelsel geroep te word nie, bv. hoofde van departemente en diegene wie se bewegings voorspelbaar is, kan per gewone telefoon effektiel gesoek word. Huisdokters, markotieurs, ongevallebeambtes en saalsusters (wat dikwels vanweë werk in die sykamers, teaters of onbereikbare plekke te vinde is) is die persone wat so 'n ontvangstoestel die nodigste het.

'n Mens moet slegs in enige hospitaal hier in Suid-Afrika 10 minute lank naby 'n telefoon te sit om die bekende 'is dr. X daar', of, 'het u net nou gevra na dr. Y', te hoor. 'Saans as alles stil is . . .' is sekerlik nie van toepassing op die meeste hospitale nie.

1. Elliot, H. C. en Lenihan, J. M. A. (1958): Lancet, I, 1329.

## A PRACTICAL DIETARY REGIME FOR DECREASING THE SERUM-CHESTEROL LEVEL

H. GORDON, B.Sc., M.B., Ch.B., Clinical Research Bursar, and J. F. BROCK, M.A., D.M., F.R.C.P., Professor of Medicine,  
From the C.S.I.R. Clinical Nutrition Research Unit, Department of Medicine, University of Cape Town

A close association has been shown to exist between the serum cholesterol and the development of atherosclerosis and coronary heart disease,<sup>1-4</sup> and it has been demonstrated that the serum-cholesterol level can readily be lowered by dietary means.<sup>5-7</sup> These observations have led to the hope that the use of an appropriate diet will provide a practical method for inhibiting the development of coronary heart disease. In man, the benefit of a cholesterol-decreasing regime in relation to this disease has not yet been established. In fact, the natural history of coronary heart disease is so variable that it is unlikely that the influence of any prophylactic or therapeutic procedure can be assessed in less than 10 years of carefully controlled clinical study. Hence there is at present no indication for introducing major changes in the eating habits of the community as a whole. Nevertheless the practitioner may be confronted with certain special cases in which he may not feel content to adopt a 'wait and see' attitude to the question of decreasing the serum-cholesterol level. This sort of problem has often been presented to us and is illustrated by the following case histories:

## Case 1

European male aged 40 years, a shopkeeper. He stated that for the past 6 months, whenever he was engaged in strenuous activity such as fixing his motor engine or hurrying up a hill, particularly after meals, he experienced a tight, burning pain in the middle of his left chest accompanied by a sensation of numbness in his left arm. These symptoms were promptly relieved by rest. He

had no other complaints. There was no family history of cardiovascular disease or of diabetes mellitus. Examination showed him to be a heavily built, thick-necked male with a slight tendency to obesity (height 5 feet 9 inches; weight 210 lb.). There was no evidence of xanthomatosis but there was a marked arcus cornealis. No evidence of organic disease was detected clinically. An electrocardiogram taken at rest showed no abnormality, but when it was repeated after effort there were marked changes consistent with myocardial ischaemia. His serum-cholesterol level was 324 mg. per 100 ml. The patient spontaneously informed us that he was a big eater and that he was particularly fond of fatty meat, gravies, eggs, butter and cheese; he then asked us whether he should modify his diet.

## Case 2

A European male aged 27 years. This man was a hard-working business executive. He had no symptoms at all. His mother died of a 'coronary thrombosis' at the age of 61; his father died from the complications of a gastric ulcer at the age of 58. He had 3 brothers, one of whom died at the age of 37 of 'coronary thrombosis'; another, aged 43 years, had survived an attack of 'coronary thrombosis'; the third brother, aged 29, was quite well. He also had 3 sisters, one of whom, aged 45 years, had had a 'coronary thrombosis'. There is no family history of diabetes mellitus or of xanthomatosis. He was a thick-set, short-necked healthy-looking young man, 5 feet 9 inches tall and weighing 165 lb. There was no abnormality on clinical examination. His serum-cholesterol level was 304 mg. per 100 ml. He was seeking medical advice on how to ward off the coronary attack which he was sure he was going to get.

In cases such as these, in whom the risk of coronary heart disease is great, we believe that there is justification for

prescribing a cholesterol-decreasing regime. We explain to the patient that the evidence for using this regime is incomplete but that it is recommended in the reasonable anticipation that its theoretical virtues will eventually be confirmed. The indications for this regime are as follows:

1. Patients with clinical evidence of coronary heart disease who have serum-cholesterol levels above 275 mg. per 100 ml.

2. Individuals with a strong family history of coronary heart disease and with serum-cholesterol levels above 275 mg. per 100 ml.

3. Cases of essential (familial or idiopathic) hypercholesterolaemia.

4. Patients with intractable angina pectoris or cardiac failure in whom artificial myxoedema is induced.

5. Cases of diabetes mellitus with hypercholesterolaemia, which does not respond to the conventional management of the underlying disease.

The figure of 275 mg. per 100 ml. as the 'upper limit of safety' has been arrived at somewhat arbitrarily and may require revision in the light of future experience. It is based on the mean level of the serum cholesterol in cases of coronary heart disease as recorded in several large surveys,<sup>8-11</sup> and in our own studies. It should be recalled that the serum-cholesterol level is liable to considerable fluctuation in active men on ordinary diets, and that serial estimations are necessary in order to determine an individual's 'characteristic' level and his response to a therapeutic programme.<sup>7</sup>

A number of different dietary regimes have been found to lower the serum-cholesterol level. Originally a reduction of the total fat intake was recommended,<sup>12</sup> but to achieve an adequate response very strict fat restriction must be enforced,<sup>7</sup> which will be irksome for the patient, difficult to maintain, and liable to produce unpleasant side-effects.<sup>1, 13</sup> Next, it was shown that formula-type diets in which all the fats were highly unsaturated effectively decreased the serum-cholesterol level:<sup>14, 15</sup> such diets, however, are highly artificial and cannot be adapted for ordinary domestic use. Recently it has been shown<sup>7</sup> that the serum-cholesterol level may satisfactorily be decreased by supplementing ordinary diets with about 50 g. of a highly unsaturated fat daily. The use of this procedure in practice is limited by the fact that the consumption of about 4 tablespoons of oil daily is not pleasant and may lead to an undesirable gain in weight; it should, therefore, be reserved for experimental purposes only.

We believe that the type of diet which will prove to be most satisfactory for general use is one in which saturated fats are moderately restricted and partly replaced by unsaturated fats. It combines the virtues of the 3 experimental regimes just mentioned and has the particular advantage of being readily adaptable to conventional domestic practice; and it can easily be adapted to achieve simultaneous weight reduction if this is desired. The purpose of this communication is to describe the constitution of such diet. Firstly, common South African foodstuffs are listed in relation to the quality and quantity of fat which they contain. Secondly, a series of sample menus is presented to illustrate the principles of this regime and to give some idea of the variety of dishes which it includes; these menus are not meant to be a prescribed programme for the patient to follow sedulously.

We should like to record that it was only after careful consideration and much hesitation that we decided to publish the details of this regime. On the one hand, we wished to meet the many requests from our colleagues for guidance in the

planning of cholesterol-decreasing diets. On the other hand, we did not want to produce an unhealthy preoccupation with dietary details in our coronary patients or to sponsor a new type of food faddism. Having decided to publish these recommendations, we trust that they will be applied only under medical supervision and in properly selected cases. We are particularly anxious that they shall not be misinterpreted by the lay public and used to gratify the desires of dietary cranks.

In the following statement foodstuffs are classified according to their fat content:

#### *Foods Rich in Saturated Fats*

(a) *Dairy Products.* Eggs, butter, milk, cream, ice cream and cheese should be avoided as far as possible. It must be noted that many cakes, puddings and similar dishes contain large amounts of these foodstuffs and should be eaten sparingly. Skimmed milk and skimmed-milk cheese may be eaten freely. Egg white is free from fat and may be used in puddings, meringues, marzipan, nougat, etc.

(b) *Meats:*

(i) Bacon, ham, pork, mutton, lamb and tongue are particularly rich in saturated fat and they are best avoided.

(ii) Lean cuts of beef, young poultry and veal contain less fat and, provided that the visible fat is trimmed away and no fat is added in their cooking, they may be eaten in moderation.

(iii) Breast of chicken, liver, kidneys and tripe contain little fat and may be eaten *ad libitum*.

(c) *Cooking Fats.* Lard and dripping should not be used. Margarines, shortenings and other solid cooking fats vary in their degree of saturation; whenever possible they should be replaced by natural cooking oils.

(d) *Pastry.* Commercial pastry is usually made with saturated fat and is best avoided. With the exception, however, of the 'flaky' variety, most pastries can be made with unsaturated fats (oils), and home-made products of this sort may be eaten freely.

(e) *Chocolates.* These contain butter, egg, cocoa butter, etc. and should only be eaten on special occasions.

#### *Foods Rich in Unsaturated Fats*

(a) *Vegetable Products*

(i) *Cooking and salad oils.* Sunflower-seed oil and maize oil are the most highly unsaturated vegetable oils available in South Africa. They may be used freely in frying and roasting, in making pastry, and as salad dressings. Refined sunflower-seed oil is palatable and odourless and can be used with confidence by the most fastidious cook. Olive oil and peanut oil are less effective than sunflower-seed oil and maize oil in lowering the serum-cholesterol level.

(ii) *Vegetables.* Avocado pears and olives are rich in unsaturated fats and may be eaten freely.

(iii) *Nuts.* With the exception of coconuts and cocoa beans, nuts are generally rich in unsaturated fats and need not be restricted. Note that most brands of peanut butter are made from crushed peanuts and are not artificially saturated fats; they may be consumed freely.

(iv) *Cereals.* Whole-grain cereals (including whole-wheat bread, Provita, etc.) are rich in unsaturated fats and are recommended.

(b) *Marine Products*

Marine animal fats in their natural form are all highly unsaturated and may be eaten in liberal quantities. Sardines, herring, pilchards, kippers, snoek and salmon contain the most fat; most other fish are largely free from fat.

#### *Foods Largely Free from Fat*

Apart from those already noted, the following foodstuffs contain very little fat of any sort:

(a) Fruit of all kinds: fresh, stewed or preserved.

(b) Vegetables, except olives and avocado pears.

(c) Gelatin desserts, fruit jellies, etc.

(d) Macaroni and similar products not made with egg.

(e) Rice.

(f) Sweets—but not toffees or chocolates.

(g)  
ed mi

A dai  
in Ta  
at the

			Breakfast
			Tea
			Lunch
			Evening Meal

The di  
wide va  
dietiti  
exhaust  
the pr  
able to  
laemic  
be ab  
wishes

The  
materi  
ing die  
the suc  
made f  
by corr  
we ar  
genatio  
shorter  
In the  
scope f  
degree  
mined  
modify  
possible  
We ha  
fed hen  
able to  
When t  
however  
action o

(g) Fruit and alcoholic beverages; synthetic or naturally flavoured mineral waters.

#### SAMPLE MENUS

A daily schedule of sample menus for a week's meals is set out in Table I. A number of recipes are shown in the Appendix at the end of this article.

Showed that it was not the cholesterol content of these eggs which raised the serum-cholesterol level and it was demonstrated that when the eggs were fried in sunflower-seed oil their increasing effect on the serum-cholesterol level was abolished.<sup>18</sup>

This experiment has been quoted to illustrate a major

TABLE I. SAMPLE MENUS (excluding beverages)

		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Corn flakes	Tomato juice	Grape fruit	Melon	Cereal	Stewed fruit	Fruit juice
Breakfast		Fried kipper	Sweet corn	Sardines on toast	Porridge (with skim milk)	Fried bread	Pilchards with tomato sauce	Baked beans
Lunch	Tea	Cucumber, tomato and lettuce sandwich	Anchovy toast	Date sandwich	Snoek sandwich	Ryvita with spiced skim-milk cheese	Peanut-butter sandwich	Sardine and tomato sandwich
	Cold consommé	Avocado pear	Fried fish with chip potatoes and green salad	Fried fish with chip potatoes	Devilled grilled kidneys	Pickled fish with chutney	Fried liver and onions	Tinned salmon
	Chicken casserole with mushrooms and rice	Macaroni with skim-milk cheese	Apple snow*	Potato salad*	Frozen fruit ice	Coleslaw	Mealie 'on the cob'	Watermelon konfyt
Evening Meal	Tea	Cranberry sherbert*	Fruit salad		Fresh fruit	Fruit jelly		
	Angel food cake*	Water biscuit with marmite	Skim-milk-cheese cake*	Date sandwich cake*	Ginger-nut biscuits	Bread and jam	Cornflake macaroon*	
	Pea soup	Chicken soup	Asparagus soup	Vegetable soup	Mushroom soup	Mulligatawny soup	Sea-food hors d'oeuvres with olives	
	Crayfish mayonnaise	Sweet potato	Fried veal and rice	Grilled sole	Asparagus	Fried mushrooms	Grilled steak, peas and cauliflower	
	Baked apple	Tripe and onions	Pineapple fritters	French salad	Baked herring	Fish cakes with mashed potatoes		
		Orange ice		Marshmallow Ice cream*	Meringue with mock cream*	Fruit tapioca pudding	Strawberries with castor-sugar or marsala	

\* See recipe in appendix

#### DISCUSSION

The dietary programme which has been described includes a wide variety of foods and should be acceptable to nutritionists, dietitians and patients. The sample menus by no means exhaust the gastronomic potential of this regime and, within the prescribed limits, an enthusiastic housewife should be able to plan many satisfying meals for her hypercholesterolaemic spouse; with a little ingenuity she should, on occasion, be able to produce elaborate repasts which will gratify the wishes of the most fastidious.

The growing interest of food technologists can be expected materially to facilitate the preparation of cholesterol-decreasing diets.<sup>16</sup> Already in Sweden Malmros *et al.*<sup>6</sup> have reported the successful use of diets containing ice cream and cheese made from milk in which the butter fat has been replaced by corn oil. With the help of South African manufacturers we are exploring the possibility of modifying standard hydrogenation processes in order to develop margarines and shortenings with increased amounts of unsaturated fats. In the field of animal husbandry there is also considerable scope for research of this sort; it is well known that the degree of saturation of body fats of animals is partly determined by the degree of saturation of their diet fats and, by modifying the diet of ruminants and poultry, it may be possible to some extent to 'unsaturate' their body fat.<sup>17</sup> We have attempted a pilot experiment of this sort, in which we fed hens with a diet rich in sunflower seeds; in this way we were able to 'unsaturate' their egg-yolk lipids from 72 to 100. When these 'unsaturated' eggs were fed to 2 human volunteers, however, we were unable to detect any difference in their action on the serum-cholesterol level. Further investigation

problem in connection with the dietary regulation of the serum-cholesterol level: what characteristic of a dietary fat determines its effect on the serum-cholesterol level? It was first thought that 'vegetable fats' as a class lowered the serum-cholesterol level whereas 'animal fats' increased it, but this was quickly disproved when it was shown that coconut oil and hydrogenated vegetable oils increased the serum-cholesterol level while marine animal fats decreased it.<sup>18</sup> Ahrens *et al.*<sup>15</sup> have suggested that the degree of saturation of a fat (as measured by its iodine value) is responsible for its effect on the serum-cholesterol level; the more unsaturated the fat, the greater is the reduction in the serum-cholesterol level which it produces, while the more saturated the fat, the greater is its increasing effect on the serum-cholesterol level. Our own observations in the above experiments with hens' eggs and in several other feeding trials have failed to confirm that there is a direct linear relationship between degree of saturation and effect on the serum-cholesterol level.<sup>20</sup> Keys *et al.*<sup>21</sup> also do not accept the 'degree of saturation' theory and they have suggested that gram for gram, the increasing effect of saturated fatty acids on the serum-cholesterol level is twice as powerful as the decreasing effect of the polyunsaturated fatty acids. In terms of this theory, 2 g. of linoleic acid are required to 'neutralize' 1 g. of saturated fatty acid; but in some of our experiments<sup>22</sup> we have shown that 100 g. of sunflower-seed oil containing only 65 g. of linoleic acid completely neutralizes the cholesterol-increasing effect of 100 g. of hydrogenated coconut fat, almost all of which consists of saturated fatty acids.

Next there is the theory of Sinclair<sup>23</sup> and Kinsell *et al.*,<sup>24</sup> who believe that the cholesterol-decreasing effect of

unsaturated fats is due to their content of a few 'essential fatty acids' of precise physico-chemical structure, particularly linoleic acid and arachidonic acid. Kinsell *et al.*<sup>24</sup> have shown that linoleic acid in doses of at least 40 g. daily does lower the serum-cholesterol level and they cite this as evidence in favour of the 'essential fatty acid' theory. They have not, however, investigated the effect of the 'non-essential' geometrical and linear isomers of linoleic acid; until this is done, the specific importance of natural linoleic acid will remain unproven.

The chain length of its component fatty acids must also be taken into account when considering the effect of a dietary fat on the serum-cholesterol level. Thus Ahrens *et al.*<sup>15</sup> have reported that butter, which is rich in short-chain saturated fatty acids, will increase the serum-cholesterol level more than cocoa butter, which has a similar degree of saturation but fewer short-chain fatty acids. It is unlikely, however, that chain length is important with respect to *decreasing* the serum-cholesterol level; short-chain polyunsaturated fatty acids do not occur in nature.

Finally, reference must be made to the work of Beveridge *et al.*<sup>25</sup> who hold that at least part of the cholesterol-decreasing effect of corn oil is due to a factor in its unsaponifiable (non-fatty acid) fraction, probably beta-sitosterol. They base their conclusions on the results of a large number of short, highly artificial feeding trials and their results are at variance with those of Ahrens *et al.*,<sup>15</sup> who found that removing most of the unsaponifiable fraction from corn oil did not interfere with the cholesterol-decreasing action of the latter. They are also at variance with our observations in 3 patients in none of whom could be cholesterol-decreasing effect of pilchard oil or sunflower-seed oil be reproduced by feeding with only the unsaponifiable fraction of these fats.

It is clear, therefore, that much investigation is still required before a directive can be given to food technologists about which factors to include or exclude from their products. The prospects are still remote of finding a cholesterol-decreasing 'philosopher's stone' of which a tiny dose will be effective without dietary restriction. In the present state of knowledge we believe that the dietary regime which has been outlined above is the most convenient way of lowering the serum-cholesterol level. It is anticipated that the effects of this diet will develop slowly, and the sharp falls in the serum-cholesterol level which occur in acute feeding experiments should not be expected. The practitioner and his patient will need to exercise considerable patience and perseverance, but we must repeat the warnings which we have given before.<sup>26</sup> The patient must not be allowed to become obsessed with attention to meticulous dietary details not to inflict his dietary conventions on his family or friends. He should be protected from developing a morbid interest in his serum-cholesterol level, and his enthusiasm for unsaturated fats should not allow him to indulge in them to the extent of producing obesity. Only in cases of marked hypercholesterolaemia in whom an adequate fall in the serum-cholesterol level is not produced by prolonged adherence to this diet is it necessary to prescribe daily draughts of highly unsaturated oils. It should be noted that none of the presently available commercial preparations of 'linoleic acid' is as concentrated as natural sunflower-seed oil or corn oil and an effective dose of these preparations is liable to present a considerable and expensive caloric supplement to the daily diet.

#### SUMMARY

1. Some tentative indications for the use of cholesterol-decreasing diets are presented; these particularly concern persons at risk of developing coronary heart disease in whom the serum-cholesterol level is regularly above 275 mg. per 100 ml.

2. It is suggested that in practice a conventional type of diet in which saturated fats are moderately restricted and partly replaced by unsaturated fats will be the most convenient method of reducing the serum-cholesterol level.

3. Common South African foodstuffs are listed in terms of the quality and quantity of fat which they contain and sample menus are provided to illustrate the composition of the recommended diet.

4. It is noted that the factor in dietary fats which determines their effect on the serum-cholesterol level has yet to be identified. Until this is achieved, no solution will be available to many of the practical problems which have arisen in connection with the production of foodstuffs suitable for a cholesterol-decreasing regime.

#### REFERENCES

- Page, I. H. (1954): Circulation, 10, 1.
- Katz, L. N. and Stamler, J. (1953): *Experimental Atherosclerosis*. Springfield, Ill.: C. C. Thomas.
- Keys, A. and Anderson, J. T. (1954): *Symposium on Atherosclerosis*, p. 181. Washington: National Academy of Sciences—National Research Council, Publication 338.
- Brock, J. F. (1958): Practitioner, 180, 191.
- Groen, J., Tjiong, B. K., Kamminga, C. E. and Willebrands, A. F. (1952): Voeding, 13, 556.
- Malmros, H. and Wigand, G. (1957): Lancet, 2, 1.
- Gordon, H. and Brock, J. F. (1958): S. Afr. Med. J., 32, 397.
- Gertler, M. M. and White, P. D. (1954): *Coronary heart disease in young adults: a multidisciplinary study*. Cambridge, Mass.: Harvard University Press.
- Oliver, M. F. and Boyd, G. S. (1953): Brit Heart J., 15, 387.
- Pomeranz, J., Beinfield, W. H. and Chessin, M. (1954): Circulation, 10, 742.
- Lawry, E. Y., Mann, G. V., Peterson, P., Wysocki, A. P., O'Connel, R. and Stare, F. J. (1957): Amer. J. Med., 22, 605.
- Keys, A. (1952): Circulation, 5, 115.
- Van Handel, E., Neumann, H. and Bloem, T. (1957): Lancet, 1, 245.
- Kinsell, L. W., Partridge, J., Boling, L. A., Magen, S. and Michaels, G. (1952): J. Clin. Endocr., 12, 909.
- Ahrens, E. H., Jun., Hirsch, J., Insull, W., Tsaltas, T. T., Blomstrand, R. and Peterson, M. L. (1957): Lancet, 1, 943.
- Symposium (1957): *Fats in nutrition and health*. J. Amer. Oil Chem. Soc., 34, 559.
- Hilditch, T. P. (1956): *The chemical constitution of natural fats*, 3rd ed. London: Chapman and Hall.
- Gordon, H., Wilkens, J. and Brock, J. F. (1958): Lancet, in the press.
- Bronte-Stewart, B., Antonis, A., Eales, L. and Brock, J. F. (1956): *Ibid.*, 1, 521.
- Gordon, H., Wilkens, J. and Brock, J. F. (1958): S. Afr. Med. J., 32, 549.
- Keys, A., Anderson, J. T. and Grande, F. (1957): Lancet, 2, 959.
- Gordon, H., Lewis, B., Eales, L. and Brock, J. F. (1957): *Ibid.*, 2, 1299.
- Sinclair, H. M. (1956): *Ibid.*, 1, 387.
- Kinsell, L. W., Michaels, G. D., Friskey, R. W. and Splitter, S. (1958): *Ibid.*, 1, 334.
- Brock, J. F. and Gordon, H. (1957): S. Afr. Med. J., 31, 663.

#### APPENDIX

##### Angel Food Cake

- Sift together 1 cup of sifted flour and 7/8ths cup of sugar.
- Measure the following into a large bowl and mix until foamy: 12 egg whites, 1½ teaspoons cream of tartar, ¼ teaspoon salt, ½ teaspoon vanilla, and ½ teaspoon almond extract.
- Gradually add ½ cup of sugar to this mixture and continue beating until stiff.

4. Fold in the flour-sugar mixture.

- Pour into an ungreased tube tin and bake in a moderate oven for 45 minutes.

##### Apple Snow

- Add a dash of nutmeg, a pinch of salt and a teaspoon of vanilla to 1½ cup of unsweetened stewed apples.
- Beat 2 egg whites until stiff and then gradually add ¼ cup sugar, while continuing to beat.

3. Fold the beaten egg whites into the stewed apples.

4. Chill before serving.

##### Cornflake Macaroons

- Beat 2 egg whites and a pinch of salt until stiff.

2. 1  
½ teaspoon  
1 cup  
3. Paper  
minute  
Crabba

1. D  
2. A  
lemon.  
3. S  
Date S

1. U  
2 layers  
2. F  
½ cup  
juice.  
Fruit T

1. C  
fruit ju  
salt.  
2. B  
overheat  
3. R  
diced c  
4. C  
Marsha

1. P  
melted:  
1 deser  
2. A  
slightly  
3. B  
into the  
4. P  
Mering  
1. B  
essence

Annula  
gical in  
reported  
more in  
years a  
describ  
curiosit  
now be  
operative  
been de  
to an el  
sympto  
the new  
requires  
been in  
having  
only aft

Assoc  
in a mi  
conditi  
biliary  
pancrea  
the resp

2. Fold the following into the beaten egg whites: 1 cup sugar,  $\frac{1}{2}$  teaspoon vanilla, 2 cups corn flakes, 1 cup shelled peanuts, and 1 cup dates and sultanas.

3. Drop teaspoonsful of the mixture on to a greased and paper-lined cookie sheet, and bake in a moderate oven for 15-20 minutes.

#### Cranberry Sherbert

1. Dissolve 2 tablespoons gelatine in  $1\frac{1}{2}$  cup boiling water.  
 2. Add: 1 cup sugar, 2 cups cranberry juice, and 3 tablespoons lemon. Stir until the sugar is dissolved.  
 3. Strain, cool and freeze.

#### Date Sandwich-cake

1. Use the same batter as for Angel Food Cake; place into 2 layer tins and bake at  $350^{\circ}\text{F}$  for about 35 minutes.

2. *Filling.* Heat  $1\frac{1}{2}$  cups chopped dates with  $\frac{1}{2}$  cup sugar and  $\frac{1}{2}$  cup water until thick. Cool and add 1 tablespoonful lemon juice.

#### Fruit Tapioca Pudding

1. Combine the following thoroughly in a saucepan:  $2\frac{1}{2}$  cups fruit juice and water,  $\frac{1}{2}$  cup tapioca,  $\frac{1}{2}$  cup sugar, and  $\frac{1}{2}$  teaspoon salt.

2. Bring quickly to a full boil, stirring constantly. Avoid overheating.

3. Remove the thin mixture from the fire, and add  $1\frac{1}{2}$  cups diced canned fruit and 2 tablespoons lemon juice.

4. Cool, stirring occasionally (the mixture thickens as it cools).

#### Marshmallow Ice Cream

1. Place the following in a double boiler and steam until melted: 20 marshmallows, 1 cup juice of canned pineapples, 1 dessertspoon gelatin dissolved in  $\frac{1}{2}$  cup water.

2. Add 1 dessertspoon lemon juice; mix and set aside until slightly jellied.

3. Beat 2 egg whites with a pinch of salt until stiff and fold into the mixture.

4. Put into a freezing tray and freeze.

#### Meringue

1. Beat 4 egg whites with a pinch of salt and 4 drops of almond essence until moderately stiff.

2. Beat in  $\frac{1}{2}$  teaspoon cream of tartar and 1 cup of sugar (a tablespoonful at a time).

3. Drop 1 teaspoon at a time on a paper-lined baking sheet and shape into shells. Bake in oven at  $250^{\circ}\text{F}$  till dry.

4. Fill with mock cream.

#### Orange Ice

1. Combine 2 cups sugar and 4 cups water in a saucepan; bring to a boil and boil for 5 minutes.

2. Cook slightly and add 2 cups orange juice,  $\frac{1}{2}$  cup lemon juice and the finely grated rind of 2 oranges.

3. Cool, strain and freeze.

#### Potato Salad

1. Dice 10 boiled potatoes and sprinkle them with a little salt.

2. Heat 1 cup white vinegar with a dash of pepper and a dash of celery salt.

3. Sprinkle 2 tablespoons finely minced onions over the potatoes, and pour the hot vinegar over all. Toss several times when the potatoes have fully absorbed the vinegar, pour off the excess.

4. Cover the potatoes generously with olive oil (or sunflower-seed oil).

5. Embellish to taste with chives, capers, pickles, chopped parsley, beetroot, onions, green peppers, etc. Serve cool.

#### SKIM-MILK-CHEESE CAKE

##### (a) Pastry Shell

1. Sift together  $1\frac{1}{2}$  cups sifted flour,  $1\frac{1}{2}$  teaspoons sugar, and 1 teaspoon salt.

2. Add  $\frac{1}{2}$  cup sunflower-seed oil and 2 tablespoons skimmed milk. Mix thoroughly with a fork.

3. Press the mixture evenly into a pie pan and flute its edges.

4. Fill with the desired filling and bake at  $375^{\circ}\text{F}$  until golden brown.

##### (b) Skim-milk-cheese Filling

1. Beat 2 egg whites until stiff.

2. Fold in: 1 lb. skim-milk-cheese,  $\frac{1}{2}$  cup skim milk, 1 tablespoon lemon juice, 1 teaspoon custard powder, and 3 tablespoons sugar.

3. Mix well and pour into pastry shell.

## ANNULAR PANCREAS: REVIEW AND CASE REPORT

W. W. FRANK, F.R.F.P.S. (Glas.), D.M.R.D. and E. P. J. KING, F.R.C.S. (EDIN.)

*Departments of Radiology and Surgery, General Hospital, Johannesburg*

Annular pancreas is a rare congenital anomaly of some surgical importance. Although well over 100 cases have been reported since 1818 when it was first described by Tiederman,<sup>1</sup> more interest has been shown in the condition in recent years and most of the cases treated surgically have been described in the last decade. At first regarded as an anatomical curiosity sometimes with pathological consequences, it has now become a condition which can be diagnosed pre-operatively and satisfactorily treated. The condition has been described at all ages, ranging from a 7-week embryo<sup>2</sup> to an elderly man of 74.<sup>3</sup> A large proportion of cases have no symptoms at any time; on the other hand it may present in the newborn as a cause of high intestinal obstruction which requires immediate surgery. Most of the reported cases have been in adults. It is interesting to observe that this anomaly, having existed since birth, in many cases causes symptoms only after many years.

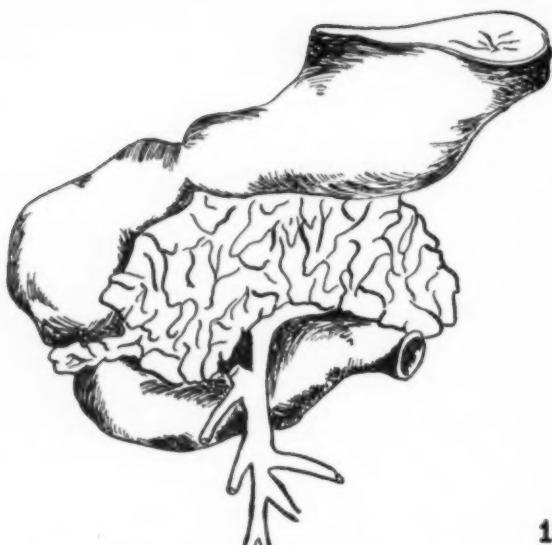
Associated pathological conditions have been described in a minority of cases requiring surgery. Of these co-existing conditions the more important have been chronic pancreatitis, biliary diseases and peptic ulceration. Theoretically, both pancreatic and biliary disease could be explained by stasis in the respective duct systems caused by obstruction. However,

in the case here presented the gall-bladder condition appears on X-ray findings to be unrelated to obstruction of the common bile-duct by the annulus. It is possible that chronic duodenal obstruction at the level of the annulus may disturb the acid-base relationship at the pylorus and so predispose to peptic ulceration.

A high incidence (25%) of other congenital abnormalities such as cardiac anomalies, aplasia of kidney, duodenal atresia and accessory pancreas is found together with annular pancreas.

#### Anatomy and Pathology

The annulus surrounds the second part of the duodenum, extending from the head of the pancreas (Fig. 1). It is composed of normal pancreatic tissue. The pancreatic ring may be deficient anteriorly, and in some cases the ring may be completed by fibrous tissue. It has its own duct, which commences anteriorly next to the head of the pancreas and then runs to the right and around the duodenum to end up posteriorly, where it usually terminates in the main pancreatic duct. There may also be actual stenosis and thickening of the portion of the duodenum that is surrounded by pancreatic tissue. If obstruction is present it may lead to dilatation



*Fig. 1.* Sketch illustrating pylorus and duodenum with the annulus surrounding the second part. An attempt has been made to illustrate the dilatation of the first part of the duodenum.

of the first part of the duodenum and occasionally of the stomach also.

#### *Embryology*

It is of interest to note that the annular pancreas is a normal finding in birds. In man the pancreas develops from a dorsal and ventral outgrowth from the primitive duodenal wall. The dorsal pancreas forms the body and tail of the adult gland. Rotation and unequal growth of the duodenal wall results in a rotation of the ventral pancreas with its duct to the right and then posteriorly, to fuse with the dorsal portion and form the head of the adult pancreas. With the fusion of the two parts of the foetal pancreas an anastomosis between the ducts occurs and, although the ventral pancreas forms only a small part of the adult gland, its duct becomes the main pancreatic duct. A most likely explanation for the development of this anomaly is a failure of the ventral anlage of the pancreas to rotate with the duodenum. As the proximal end of the duct rotates to the right and posteriorly, a band of pancreatic tissue is drawn circumferentially around the duodenum. This theory is in keeping with the described course of the annular duct and the fact that the duct normally empties into the main pancreatic duct.

#### *Clinical Findings*

The clinical features are often coloured by the symptoms and signs of related pathological conditions. Otherwise most of the patients present with obstructive symptoms of insidious onset and lasting over a period of years. Bouts of nausea and vomiting after meals and epigastric pain, which may be severe, are the presenting symptoms. The pain is not relieved by alkalis. Jaundice may, rarely, be a feature. On examination there may be epigastric tenderness only and the annulus is not palpable. Efforts to establish a diagnostic syndrome have been disappointing.<sup>4</sup> Clinical examination is of little help except to exclude other conditions.

#### *Diagnosis*

The condition is frequently missed, because the symptoms are not typical of any particular disease and because, owing to its rarity, the condition is not thought of. The most valuable pre-operative evidence is given by the radiologist, who also must be aware of the condition in order to diagnose it. Further, it may be missed at operation as well, if the surgeon does not bear it in mind.

#### *Radiological Features*

The lesion can be radiologically detected only by barium meal examination, and the most important and constant feature is the narrowing which is seen in the second part of the duodenum. As the narrowing is due to an external pressure, there is no mucosal irregularity and the contours are smooth. It is usually more marked on the lateral aspect of the duodenum than on the medial aspect, but may occasionally be equally prominent on the two sides. The point of obstruction may, on rare occasions, be obscured by the over-hanging distended duodenal bulb.<sup>5</sup> The narrowing usually affects only a very small segment of duodenum, most of the described cases being 1-3 cm. in longitudinal extent.

Proximal to the constricted portion of the duodenum varying degrees of obstructive dilatation occur. The obstruction may be almost complete, with a large food residue remaining in the stomach after many hours,<sup>6,7</sup> or it may cause only slight hold-up, or even none.

The duodenum distal to the constriction is usually described as being of reduced lumen, but it may even be markedly distended.<sup>4,8</sup>

The second part of the duodenum is retracted medially as though hooked slightly to the right by the encircling finger of the pancreas.

Associated peptic ulcer in the duodenum, and less frequently in the stomach, may also be detected during the examination (18 out of 56 cases reported—Whelan and Hamilton<sup>9</sup>).

In the differential diagnosis the main diseases to be considered are duodenal polyps, post-bulbar ulcers, congenital bands, and malignant tumours. Lehman<sup>8</sup> and Whelan and Hamilton<sup>9</sup> describe cases which on barium examination were first thought to be simple duodenal tumours, and it may be impossible to distinguish the two conditions pre-operatively if there is no sign of obstruction. As a small polyp up to about 1 cm. in diameter is unlikely to cause any hold-up of duodenal contents, any obstructive signs are thought to favour the diagnosis of annular pancreas.

Of the congenital obstructing agents the cholecystoduodenocolic band is the one which has caused confusion, and Whelan and Hamilton describe a case in which this condition was erroneously diagnosed as annular pancreas. These bands, however, usually obstruct the first part of the duodenum, whereas annular pancreas always affects the second part. They may of course be indistinguishable without direct visualization.

Malignant tumours of the duodenum or invading the duodenum from periduodenal tissue often cause narrowing of the lumen, but in these diseases the destruction of the mucosa and irregularity of contour are early radiological features and will readily distinguish the malignant from the benign.

Post-bulbar ulcer may cause an appearance almost indistinguishable from that of annular pancreas owing to the asymmetrical narrowing of the duodenum caused by spasm

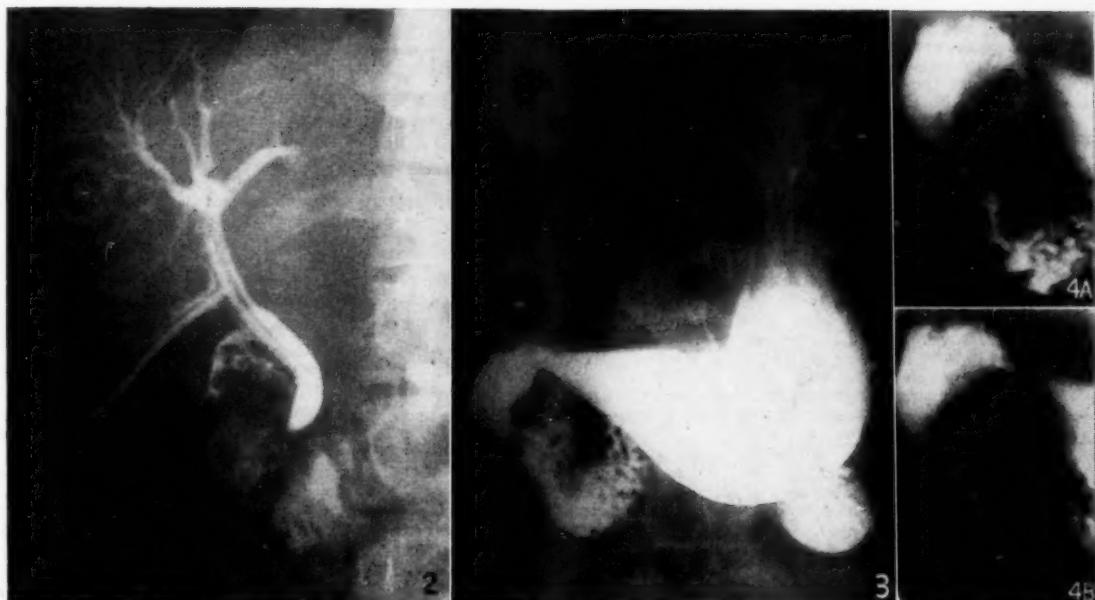


Fig. 2. The T-tube cholangiogram done after the duodenal short-circuit operation. The common bile-duct is unobstructed. The contrast medium outlines the mucosa of the second and third parts of the duodenum. At the proximal end of that part of the duodenum which is outlined, the impression of the pancreatic annulus is seen. It is obviously not affecting the common bile-duct.

Fig. 3. The appearances on barium meal after operation. The constriction of the second part of the duodenum by the annulus is clearly demonstrated; some hold up of barium proximal to the constriction is present. The short-circuit loop of the duodenum which by-passes the constriction is also shown. The medial displacement of the second part of the duodenum is due partly to the anomaly and partly to the operation.

Fig. 4. Serial spot films of the second part of the duodenum showing the constriction, with hold-up of barium proximally, and intact mucosa.

in the wall opposite the ulcer. If a crater is seen the diagnosis is obvious; co-existent post-bulbar ulcer and annular pancreas have not yet been described.<sup>9</sup> But a crater may not be visible, although spasm is present in almost every case of post-bulbar ulcer. Kaufman and Levene<sup>10</sup> publish illustrations of post-bulbar ulcers which on barium meal resemble the appearance of annular pancreas very closely.

The diagnosis in these cases may have to depend on secondary manifestation of ulceration, such as irritability of the bulb and absence of signs of obstruction. Ball, Segal and Golden (quoted by Kaufman and Levene<sup>10</sup>) state that all their cases of post-bulbar ulcer showed irritability of the bulb.

#### Treatment

Surgery affords the only relief and the procedure undertaken will depend on associated conditions if present. The most attractive procedure at first thought is a *direct attack* on the annulus, namely, division and resection of a portion of the ring, but in the earlier cases described this led to fistula formation in some, and a failure to relieve the obstruction in others. The former complication may be overcome by remembering the anatomy and commencing the resection anteriorly and as close to the head of the pancreas as possible. This ensures that the duct will be resected near its origin so that little or no secreting tissue will be distal to the point of division. Furthermore, the use of non-absorbable sutures will also diminish the chance of fistula formation. Before considering the operation as completed it is necessary to inspect the affected duodenal segment in order to eliminate the possibility of stenosis, and it may be advisable to open the duodenum proximally and palpate the size of the lumen.

If stenosis exists it can be overcome by incising the duodenal wall longitudinally and closing the lumen in the transverse diameter in the Heineke-Mukulicz pyloroplasty. When considering all that this entails and the obvious hazards, we feel that a simpler procedure is to be preferred.

Posterior gastro-enterostomy has been employed. An objection to this procedure is that the operation does not necessarily relieve the distention of the duodenum, nor consequently the tendency to pain and occasional vomiting. Furthermore, the procedure exposes the patient to the danger of stomal ulceration.

Polya gastrectomy is effective in relieving the obstruction but obviously should only be performed when there is an associated peptic ulcer. The duodenum is resected just proximal to the annulus which need not be disturbed.

Retrocolic duodeno-jejunostomy is a relatively simple and safe procedure and appears to be free from complications. It has so far been the most satisfactory procedure in the cases reported.

If jaundice has been present or suspected, the common bile-duct should be explored and any stenosis of the duct dilated. An indwelling T-tube should be left in for drainage.

Finally in the most recent cases reported,<sup>4</sup> including the case we are now reporting, *duodeno-duodenostomy* has been performed with good results. After mobilizing the duodenal loop the anterior wall of the distended duodenum proximal to the annulus is anastomosed to the anterior wall of the duodenum distal to the obstruction.

#### CASE REPORT

An adult European male aged 38, occupation physiotherapist, was admitted to the Johannesburg General Hospital in August

1957 for investigation and treatment of epigastric pain. The patient had had bouts of pain since the age of 12 years. These attacks were usually severe, and used to occur about once a day, with occasional periods of relief. The attacks were not related to meals, nor were they relieved by alkalis. He generally felt nauseous, but vomiting was only an occasional feature. Over the years he was treated by many doctors, and was eventually labelled a neurotic. At the age of 18 he underwent appendectomy for 'chronic appendicitis'.

In 1943, while serving in the South African Army in East Africa he developed severe abdominal pain associated this time with profuse vomiting. At this time also, he was slightly jaundiced. He was diagnosed as a case of malaria and was treated for this.

In 1947 a cholecystogram showed stones in the gall-bladder. His attacks of pain, vomiting and slight jaundice were attributed to cholelithiasis, and for this he underwent a cholecystectomy.

Between 1955 and 1957 he again underwent numerous investigations for recurrent upper abdominal pain and vomiting. He was losing weight and was contemplating suicide. These attacks of pain were associated with slight jaundice and were similar to those occurring before the cholecystectomy. The pain was not related to meals, was again epigastric in situation, radiating through to the back.

When examined on admission the patient presented as a well-built adult male in no obvious distress. He was not clinically jaundiced or anaemic. He bore the scar of his previous Kocher incision and the lower abdominal scar of the previous appendectomy incision. The abdomen was soft, was not distended, and was tender to deep palpation in the epigastrium. No abnormal masses were palpable. His other systems were normal. His blood pressure was 130/84 mm. Hg.

The following investigations were made:

*Liver Function Tests* showed some abnormality indicating slight parenchymatous dysfunction without an obstructive element. The results were as follows (the normal values are shown in brackets):

Thymol turbidity, 2.0 (0.2). Thymol flocculation, negative (negative). Colloidal red, + (negative). Cephalin cholesterol flocculation (24-hour reading), ++ (negative). Taka Ara (Ucko's modification) (negative) (negative). Zinc sulphate turbidity, 15.8 (<12.5). Total lipid, 491 (500-700 mg. %). Alkaline phosphates (King Armstrong), 6.8 (4-13). van den Bergh, delayed direct (negative). Bilirubin, direct, 0.3 (0.2 mg. %). Bilirubin, total, 1.5 (1.2 mg. %). Total protein, 7.1 (5.6-8.5 g. %). Albumin, 3.5 (4.3-5.7 g. %). Globulin, 3.6 (1.3-3.0 g. %). Gamma globulin, 1.27 (0.6-1.25 g. %). Cholinesterase, 86% of the average normal activity.

*Urine* contained urobilin + + + and no bile.

*Full blood count* normal. Prothrombin index normal.

*Intravenous Cholangiogram*: Normal calibre of duct, no stones or stenosis evident.

*Blood urea*, 21 mg. %.

*Intravenous pyelogram* normal.

*Serum amylase* 28 Street-Close units (normal 8-38).

*X-ray of chest* normal.

*Barium Meal*. Pre-operative barium meal was said to be normal, but details were not available (report or films not traced).

#### Operation

On 30 July 1957 under general anaesthetic the abdomen was opened via a right subcostal (Kocher's) incision. Numerous upper abdominal adhesions from the previous cholecystectomy were encountered, making the initial dissection difficult. The common bile-duct was perhaps slightly dilated. The liver, stomach and first part of the duodenum appeared normal. The annulus was not seen at this stage. The common bile-duct was opened and explored with bougies. No stones or stenosis were encountered, the bougies passing freely into the duodenum.

It was then decided to expose and palpate the head of the pancreas and ampulla. The hepatic flexure was mobilized and it was then that an annular pancreas was found encircling the second part of the duodenum. It was a complete ring of pancreatic tissue. The duodenum proximal to the annulus appeared more dilated than that distal to it.

The duodenum was mobilized by the Kocher manoeuvre, i.e.

an incision around its convexity and brought forwards. The annulus was not disturbed and a duodeno-duodenostomy was performed anterior to the annulus. A T-tube was inserted into the common bile-duct and the abdomen was then closed.

Recovery from the operation was uneventful.

A cholangiogram through the T-tube was performed on 12 August 1957 (Fig. 2). This shows completely normal hepatic duct and common bile-duct with no obstruction to the flow of contrast medium from common duct to duodenum. The proximal limit of the contrast medium outlines the duodenal constriction resulting from the pancreatic annulus and this is seen to be about 2 inches proximal to the ampulla of Vater. It is evident from this that the biliary disease cannot be explained solely on the basis of ampullary obstruction.

The T-tube was removed 4 days later and the patient left hospital completely free of pain. He has since remained in good health.

A post-operative barium-meal examination was done on 4 November 1957 (Figs. 3 and 4). This showed that the stomach was of normal size and appearance. The duodenal cap was not distended but its normal outline had been altered by the operation. From the duodenal cap the barium passed via two routes, firstly by the short-circuit loop, and secondly by the normal route to the second part of the duodenum, where it was held up by a very narrow constriction through which it passed with some difficulty. The duodenal indentation was present both medially and laterally but was more marked on the lateral side. There was no mucosal destruction. The medial displacement of the duodenum, said to occur at the level of the annulus, was seen but must be partly accounted for by the operation.

#### SUMMARY

1. A case of annular pancreas is described in which the diagnosis was made at operation. It had been missed pre-operatively in spite of numerous investigations extending over many years.

2. The embryology, anatomy and pathology are described.

3. Pre-operative diagnosis depends mainly on radiology. The differential X-ray diagnosis from such conditions as duodenal polyps, post-bulbar ulcers of duodenum, congenital bands and malignant tumours is discussed.

4. The treatment carried out in this case was duodeno-duodenostomy; other operations are discussed.

5. Associated biliary disease was present. Post-operative T-tube cholangiogram showed that there had been no obstruction to the common bile-duct to account for this.

We should like to thank Dr. Josse Kaye, Head of the Radiology Department, Johannesburg General Hospital, and Mr. J. Wolfowitz, Surgeon, Johannesburg General Hospital, who performed the operation, for assistance and advice; and Miss M. Tomkin Senior Radiographer, for the photographs.

#### REFERENCES

- Tiedeman, F. (1818): Dtsch. Arch. Physiol., 4, 403.
- Weisberg, H. (1935): Anat. Anz., 79, 296.
- Smetana, H. (1928): Beitr. path. Anat., 80, 239.
- Boothroyd, I. S. A. (1957): Ann. Surg., 146, 139.
- Whelan, T. J. and Hamilton, G. B. (1957): *Ibid.*, 146, 252.
- McGee, A. R., Black, L. W. and Beattie, H. (1953): Radiology, 60, 532.
- Skapinker, S. (1954): J. Int. Coll. Surg., 22, 414.
- Lehman, E. P. (1942): Ann. Surg., 115, 574.
- Dodd, G. D. and Nafis, W. A. (1956): Amer. J. Roentgenol., 75, 333.
- Kaufman, S. A. and Levene, G. (1957): Radiology, 69, 848.

#### ADDITIONAL BIBLIOGRAPHY

McNaught, J. B. (1933): Amer. J. Med. Sci., 185, 249.  
 Cunningham, G. J. (1940): Brit. J. Surg., 27, 678.  
 Payne, R. L. (1951): Ann. Surg., 133, 754.  
 Wakeley, J. C. N. (1951): Lancet, 2, 811.  
 MacPhee, I. W. (1953): Brit. J. Surg., 50, 510.  
 Wilson, H. and Bushart, J. H. (1953): Ann. Surg., 137, 818.  
 Custer, M. D. and Waugh, J. M. (1944): Proc. Mayo Clinic, 19, 388.  
 Goldyne, A. J. and Carlson, E. (1946): Amer. J. Surg., 71, 429.  
 Ohlmacher, A. P. and Marshall, E. A. (1953): *Ibid.*, 79, 473.  
 Ravitch, M. M. and Woods, A. C. (1950): Ann. Surg., 132, 1116.

This pa  
admitte  
of Gro  
case su  
Unfortu  
and as

The  
of whi

25  
20  
15  
10  
5  
NUMBER OF CASES

Fig. 1  
distri

males a  
graph i  
divided  
on the  
group I

An ana

(14) pre

1. Ca  
sympto  
indigest  
cases w  
suspecte  
laparote  
made.  
cause o

2. Ca  
The sy  
constipa  
was sus  
tion a  
treatme

3. Ca

Case 1  
Invest

## DIVERTICULOSIS AND ITS COMPLICATIONS

ARTHUR MEARS, M.B., B.CHIR., (CAMB. AND BARTS.), F.R.C.S. (EDIN.), Department of Surgery, Groote Schuur Hospital, Cape Town

This paper is intended to be a brief clinical survey of the cases admitted to the professorial wards of the surgical department of Groote Schuur Hospital during the period 1950-55. The case summary cards were used as a basis for this analysis. Unfortunately, as there were not many pathological reports and as the X-ray records were unobtainable, no correlation of the evidence could be carried out.

The number of cases admitted during this period was 44, of whom 38 were Europeans and 6 Coloureds; 23 were

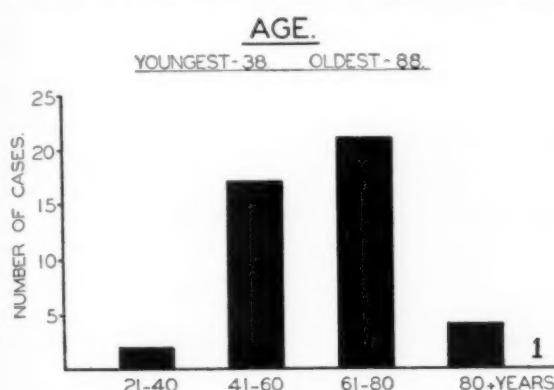


Fig. 1. Analysis of 44 cases of diverticulosis showing age distribution.

males and 21 females. The age incidence is shown by the graph in Fig. 1. For purposes of analysis these cases were divided into 2 main groups as taken from the final diagnosis on the case card: Group A, cases of diverticulosis; and group B, cases of diverticulitis.

### GROUP A: DIVERTICULOSIS

An analysis was made of the symptoms with which these cases (14) presented:

1. Cases with vague abdominal symptoms (4). The symptoms were referable to the gastro intestinal tract, e.g., indigestion, loss of weight, and vague abdominal pains. These cases were admitted for investigation because carcinoma was suspected clinically. After full investigation, and after a laparotomy in 1 case, a final diagnosis of diverticulosis was made. In 2 cases psychoneurosis was suggested for the real cause of the symptoms.

2. Cases with symptoms referable to the large bowel (5). The symptoms were those of alteration of bowel habit, e.g., constipation and diarrhoea. Carcinoma of the large bowel was suspected clinically in these cases. After full investigation a final diagnosis of diverticulosis was made. The treatment was palliative.

3. Cases with rectal bleeding as a prominent symptom (3).

#### Case 1

Investigations were negative except for evidence of diverticu-

losis. In this case 'small' haemorrhoids were considered the likely cause.

#### Case 2

Investigations were negative except for evidence of diverticulosis. A laparotomy was performed which was also negative. A *faute de mieux* diagnosis was made of diverticulosis.

#### Case 3

In this case there was a history of melaena with a Hb. 8.8 g.% and a transfusion of 3 pints of packed red cells was necessary. Investigations revealed an oesophageal hiatus hernia and diverticulosis. No cause for the bleeding was established and the patient was discharged with the intention that laparotomy should be performed if the melaena recurred.

This is an unsatisfactory group, because in no case was it definitely established that diverticulosis was not the underlying cause of the rectal bleeding. The case notes indicate a reluctance on the part of the examiners to accept diverticulosis as the cause of the bleeding and tend to suggest some other undetermined pathology, e.g. in the one case 'small' haemorrhoids was suggested as the possible cause.

4. Cases with diverticulosis coincidental with other pathology (2).

#### Case 1

A known case of carcinoma of the prostate with hydronephrosis of the right kidney was investigated for symptoms of intestinal obstruction. Barium enema examination revealed diverticulosis and a laparotomy was negative. A final diagnosis of paralytic ileus was made.

#### Case 2

A case of melaena. On investigation a filling defect of the caecum was found for which a right hemicolectomy was performed. Examination of the specimen revealed an idiopathic inflammatory ulceration of the caecal mucosa with fibrosis. At some distance from this ulceration diverticula were present which showed no inflammatory changes on histological examination.

### GROUP B: DIVERTICULITIS

An analysis was made of the clinico-pathological pattern with which these cases (30) presented:

#### Acute Inflammation

Acute inflammation with its complications occurred in 18 cases. This group can be further subdivided into:

1. Cases with acute peridiverticular inflammation without complications, giving rise to symptoms suggestive of 'left-sided appendicitis' (9). These cases had a short history and on examination all but 2 were febrile. In all of them tenderness was elicited in the left iliac fossa and in 6 cases a mass could be felt either in the left iliac fossa or *per rectum*. In 2 cases the clinical diagnosis of diverticulitis was made but never confirmed. In the remaining 7 cases this diagnosis was established either by a barium enema examination, or at laparotomy. Two operations were performed on the basis of a wrong diagnosis: (i) A laparotomy for suspected appendicitis, and (ii) a laparotomy where a transverse colostomy was performed for a supposed carcinoma of the sigmoid. Otherwise the treatment was conservative with antibiotics. All cases made good recoveries, and some months later a 3-stage sigmoidectomy was performed in 1 case.

2. Cases of acute peridiverticular inflammation with complications referable to a diverticulum:

(a) Acute perforation with subsequent peritonitis (5 cases)

A perforation of a diverticulum of the sigmoid was demonstrated in all but 1 case, either at operation or on post-mortem examination. In these cases the onset of the condition appears to be gradual and it takes the form of a spreading peritonitis from the left iliac fossa. There was a tendency to report late for treatment in our series. The shortest delay was 36 hours and the longest 5 days. This group is remarkable because the patients were relatively young; their ages varied from 41 to 61, and 4 out of the 5 cases were males. There were 2 deaths amongst them, which were the only deaths in the whole series of 44 cases. The treatment in all but 1 case was a right transverse colostomy with a drain to the region of the perforation. In 1 case, which was exceptional on account of his bad general condition, treatment consisted only in the insertion of a drain. The 2 deaths reflect a mortality of 40%. Of the 3 survivors, after re-examination by means of a check barium enema procedure 6 months later, 2 had a sigmoidectomy performed and 1 a simple closure of the colostomy.

(b) Perforation with subsequent pelvic abscess (2 cases). Both abscesses were drained, with subsequent faecal fistula formation. These fistulae were treated successfully by defunctioning transverse colostomies. In 1 case the colostomy was closed 4 weeks later; in the other, 6 months later. No bowel resection was required.

(c) Perforation with subsequent colo-vesical fistulae (2 cases). Both cases had pneumaturia and were treated successfully by a 3-stage sigmoidectomy.

#### *Chronic Inflammation*

Chronic inflammation with its complications occurred in 12 cases. This group can be subdivided into:

1. Cases with chronic peridiverticular inflammation with the emphasis on the mucosa, giving rise to haemorrhage, either melaena or bright blood *per rectum* (3).

#### *Case 1*

A known case of diverticulitis was admitted for investigation for this symptom but, while under treatment with antibiotics, he developed a 'black tongue'. The investigations were then postponed, and the case is thus incomplete.

#### *Case 2*

The history in this case was one of upper abdominal pain associated with occasional melaena as well as with bright blood *per rectum*. The haemoglobin was 6.3 g.% and a transfusion of 4 pints of packed red cells was given. Full radiological investigation revealed diverticulitis of the sigmoid, which was accepted as the cause. Treatment was palliative.

#### *Case 3*

Was one of repeated attacks of melaena, for which transfusions had been given and a laparotomy had been performed with removal of a duodenal diverticulum. Despite this, the melaena continued and eventually a left hemicolectomy was performed for diverticulitis of the descending colon. After this operation the attacks of melaena ceased. Examination of the specimen showed that the source of the bleeding was in the mucous membrane of a chronically inflamed and thickened segment of colon associated with diverticulitis.

2. Cases with chronic peridiverticular inflammation causing fibrosis and stenosis of the bowel wall, thus giving rise to symptoms of large-bowel obstruction.

(a) Cases which presented with acute large-bowel obstruction. (3).

#### *Case 1*

The symptoms, which were those of incomplete large-bowel

obstruction, were relieved by enemas. Subsequently a 1-stage sigmoidectomy was performed.

#### *Case 2*

The symptoms were those of incomplete large-bowel obstruction plus a history of melaena. A 1-stage sigmoidectomy was performed. Examination of the specimen revealed an area of diverticulitis associated with 3 benign ulcerated polypi; the latter no doubt accounted for the melaena.

#### *Case 3*

The symptoms were those of a complete large-bowel obstruction, for which an emergency colostomy had to be performed. Subsequently a barium enema investigation revealed a stenosis of the junction of the descending colon with the sigmoid colon due to diverticulitis. This patient was left with a permanent colostomy because he was a poor surgical risk.

(b) Cases which presented with chronic obstructive symptoms and alteration of bowel habit (6). The symptoms are those of alteration of bowel habit—constipation or diarrhoea and passage of blood and mucus, sometimes associated with abdominal cramps. These cases were all suspected of carcinoma of the large bowel. A pre-operative diagnosis of diverticulitis was made by barium enema examination in 5 cases, and in 1 case a diagnosis was made at laparotomy. In 3 cases the treatment was conservative and the other 3 patients were operated on. In 2 of the latter a sigmoidectomy was performed (1 as a 1-stage operation and 1 as a 3-stage operation). In the other case a 1-stage left hemicolectomy was performed.

#### DISCUSSION

##### *Group A: Diverticulosis*

A review of the cases described in this group reveals the following:

(i) The symptoms are the same as those of diverticulitis except for the fact that they are milder in nature.

(ii) The symptoms in general are the same as those associated with carcinoma of the gastro intestinal tract, especially of the large bowel.

(iii) In discriminating between diverticulosis and diverticulitis, it appears from our findings in this series, that the X-ray appearances have been accepted as adequate criteria for diagnosis. Cases with obvious radiological appearances on barium enema examination, such as 'filling defects', were classified as diverticulitis.

If it is kept in mind that these cases were admitted into the surgical wards for investigation, it will be realized that the symptoms with which they presented must have been sufficiently impressive. These cases, then, were in reality early cases of diverticulitis without complications. After all, 'filling defects' as seen on barium enema examination, suggest a long-standing inflammatory condition.

##### *Group B: Diverticulitis*

The following conclusions can be drawn from our findings in this group:

(i) This group represents established diverticulitis with complications. All the usual complications encountered in diverticulitis, which are wide and diverse, and which include generalized peritonitis, are reflected in this series.

(ii) The treatment of diverticulitis and its complications was carried out on conventional and conservative lines whenever possible. Surgical intervention depended on the particular complications in the individual case. Defunctioning colostomy, followed 6 months later by a possible resection, has been the accepted surgical principle in dealing with cases

of acu  
obstru  
could  
mode  
perf

(iii)  
surge  
series—

(iv)  
stated  
operat  
deaths  
that m

Comm  
From  
formed  
toward  
Nowhe  
i.e. ea

In th  
surgery  
a case a  
barium  
the des

The ma  
Milstei  
3 cases  
in thei

Case 1

Cardi  
inductio  
mg. of

The p  
which w  
2 minut  
so after  
line dil  
produce  
when th  
which 1  
was co  
nor-adre  
nor-adre  
powerfu  
ventricu  
from th  
jected i  
flaccid a  
A post  
diffuse r

Case 2

Cardi  
proxim  
viously  
into the  
proved a  
minute.  
the arr

of acute or sub-acute inflammation. For the chronic case with obstructive symptoms, or where carcinoma of the colon could not be excluded, elective surgery consisting of a sigmoidectomy or hemicolectomy in 1 or 3 stages has been performed.

(iii) In this series the surgery of diverticulitis has been the surgery of the pelvic colon, and the resections—11 in this series—have been either sigmoidectomy or left hemicolectomy.

(iv) On the basis of our experience in this series it can be stated that resection is a safe procedure provided the correct operation is selected for the particular patient. There were no deaths in the 11 resections performed, in spite of the fact that many of these were complicated cases.

#### *Comment*

From the foregoing it will be seen that the surgery performed in this series has been conventional; it was directed towards meeting the particular complication presented. Nowhere was surgery performed for the uncomplicated case, i.e. early diverticulitis without complications.

In this respect one would like to raise a plea for preventive surgery for a particular select type of case. One has in mind a case in the 4th, 5th or 6th decades (especially males) in which barium enema examination reveals extensive diverticulosis of the descending and pelvic colon, with symptoms, of course,

but with no 'filling defects.' To draw a parallel: If one could imagine a sigmoid festooned with diseased appendices, would there be any doubt regarding the type of surgical treatment indicated in these cases? After all, compared with a diverticulum, the appendix *per se* is a normal structure and it should be less likely to develop the complications which are common to both these conditions. In such a hypothetical case, would surgeons prescribe liquid paraffin with the equanimity with which they prescribe it for uncomplicated diverticulitis? All the evidence available is that once inflammation has set in, diverticulitis is a progressive condition.

#### SUMMARY

Forty-four cases of diverticulosis and their complications and treatment are reviewed. It is suggested that the diagnosis of diverticulitis should be made on the symptoms, and the 'filling defect' appearances on X-ray examination should be regarded as evidence of chronic and established disease. A plea is made that there is a place for preventive surgery such as left hemicolectomy in a small and select group of cases of diverticulitis without complications.

I am grateful to Prof. J. H. Louw, Department of Surgery, for his interest in the preparation of this paper. I am also indebted to Dr. J. G. Burger, Medical Superintendent, Groote Schuur Hospital, for access to the records.

## ASPECTS OF THE MANAGEMENT OF CARDIAC ARREST

BERIC JACKSON, M.B., B.S. (LOND.), D.A., R.C.P.&S. (ENG.)

Department of Anaesthesia, King Edward VIII Hospital and University of Natal

The management of cardiac arrest has been well reviewed by Milstein<sup>1</sup> and Katz.<sup>2</sup> The purpose of this paper is to present 3 cases of cardiac arrest, and to discuss some points of interest in their treatment.

#### *Case 1*

Cardiac arrest occurred in a man aged 63 shortly after the induction of anaesthesia with 200 mg. of thiopentone and 25 mg. of succinylcholine.

The patient was inflated with oxygen via an endotracheal tube which was already in position, and the chest was opened within 2 minutes of the arrest. The heart appeared to be in asystole; so after cardiac massage for 3 minutes, 0·5 c.c. of 1 : 1,000 adrenaline diluted to 5 c.c. was injected into the left ventricle. This produced no evident change in the appearance in the heart, but when the pericardium was opened a fine fibrillation was observed which had not been seen through the pericardium. Massage was continued and after a further 5 minutes 2 c.c. of 1 : 10,000 nor-adrenaline was injected into the ventricle, and an intravenous nor-adrenaline infusion started. This was followed by some powerful but irregular contractions for a short time, after which ventricular fibrillation continued. After 40 minutes had elapsed from the time of cardiac arrest 4 c.c. of 2% lignocaine was injected into the left ventricle. The heart immediately became flaccid and unresponsive to any further attempts at resuscitation. A post-mortem examination showed a previous infarct and diffuse myocardial fibrosis.

#### *Case 2*

Cardiac arrest, due to an obstructed airway, occurred approximately 20 minutes after the end of an operation in a previously healthy young woman. The patient was wheeled back into the theatre and an endotracheal intubation attempted. This proved difficult and delayed the oxygenation of the lungs by a minute. The chest was opened approximately 6·8 minutes after the arrest. The heart was in asystole and flabby. Massage pro-

duced no improvement in tone and after 3 minutes, 0·5 c.c. of 1 : 1,000 adrenaline diluted to 5 c.c. was injected into the left ventricle. Fibrillation immediately followed. Massage was continued and 2 c.c. of 1 : 10,000 nor-adrenaline was then injected into the left ventricle. Some strong irregular beats then occurred, but ventricular fibrillation soon ensued and further efforts at resuscitation were unsuccessful.

#### *Case 3*

Cardiac arrest occurred shortly after the administration of 0·45 g. of thiopentone to a woman aged 32. There was a delay in the diagnosis of cardiac arrest, perhaps 2-3 minutes; the lungs were inflated with oxygen at the time. The chest was opened approximately 4 minutes after the arrest, and a large pericardial effusion was found. The heart was in asystole. After massage had been carried out for 3 minutes, 0·5 c.c. of 1 : 1,000 adrenaline was injected into the left ventricle. Fibrillation immediately started. After a further 3 minutes, 7 c.c. of 10% calcium gluconate was injected into the left ventricle. A strong and regular heart beat was the result. This patient was unconscious for 24 hours after the arrest and thereafter made a complete physical recovery, but she would have been permanently mentally defective had she not succumbed to a large pulmonary embolus 10 days after the operation.

#### THE MANAGEMENT OF CARDIAC ARREST

A routine procedure for the management of cardiac arrest which is simple and suitable for use in any operating theatre, will now be described under the following headings: (1) The diagnosis of cardiac arrest, (2) cardiac massage and pulmonary ventilation and (3) the use of a defibrillator if fibrillation is present, or the use of calcium gluconate if asystole is present.

A more complicated routine resembling a dramatic play is unnecessary, for the success of cardiac resuscitation depends

on the efficiency with which sections (1), (2) and (3) of the above-mentioned procedure are carried out.

#### *Diagnosis of Cardiac Arrest*

The diagnosis of cardiac arrest must be made very promptly for irreversible damage to the brain will occur unless an effective circulation is re-established within 3-4 minutes. Thus in case 3, although cardiac massage was successful in re-starting the heart, the patient survived the catastrophe as a mental cripple.

In recent years a number of useful electrical amplifiers have been produced which record the heart beat or pulse wave continuously so that the anaesthetist is warned when cardiac arrest occurs. Almost as effective is a long anaesthetist's stethoscope, the diaphragm of which can be fixed to the chest over the apex beat or, more conveniently in babies, placed under the supine patient. The heart beat can be auscultated continuously or as required, even when peripheral pulses are difficult to palpate and, if a 2-way cock is fitted to the stethoscope, another diaphragm can be fitted to the antecubital fossa so that blood pressures or heart beats may be noted without inconvenience. In case 1, cardiac arrest was diagnosed when it occurred because a stethoscope was fixed in position, while in case 3 no stethoscope was present in the theatre and the diagnosis was delayed. A continuous electrocardiographic record is the most effective way to diagnose any abnormality in the rate, rhythm or function of the heart which may occur during operation, but the use of the electrocardiogram for every surgical procedure is impracticable.

#### *Cardiac Massage and Pulmonary Ventilation*

Although pulmonary ventilation is ineffectual without a pumping heart, this subject will be mentioned first. Myocardial anoxia is the most frequent cause of cardiac arrest, so that when arrest occurs the anaesthetist promptly initiates adequate pulmonary ventilation with a high percentage of oxygen. It is often a quicker procedure to inflate the lungs initially with oxygen with a face mask until a suitable endotracheal tube and connections are selected. In case 2, initial oxygenation was delayed by an effort to insert an endotracheal tube.

Once cardiac arrest has been diagnosed the onus of initiating cardiac resuscitation rests with the medical practitioner present, and the procedures must be started immediately and should not be delayed to await the arrival of more skilled personnel.

If the abdomen is open at the time of arrest the heart can be massaged by squeezing the ventricle between the hand and the sternum from below the diaphragm. In children the method of resuscitation described by Rainer and Bullough,<sup>3</sup> can be tried. The knees are flexed and pressed onto the chest and alternately the legs are extended while pulmonary inflation with oxygen is carried out. I have used this method successfully on one occasion.

If either of these methods is not successful within 15-20 seconds, a transpleural approach is essential for effective massage and observation of the heart. An incision is made in the 4th intercostal space extending from the mid-axillary line to the sternum. A costal cartilage is divided and the ribs are spread by an assistant or by a rib-spreader. Unless this wide incision is made, a hand, or when necessary 2 hands, cannot be introduced into the thoracic cavity in a manner which will allow efficient cardiac massage. A valid generalization would

be to say that on many occasions neither is the exposure adequate nor the massage effective.

If the legs are raised at the commencement of the massage, an increased venous return of blood will be made available at the crucial time, or alternatively a slight head-down posture can be instituted when the cardiac arrest is diagnosed. The heart should be compressed at the rate of 50-60 times, per minute between the palmar surfaces of the fingers and the thenar eminences in a manner which will produce a palpable peripheral pulse wave. In this way the cerebral circulation can be maintained and the necessary re-oxygenation of the myocardium can be achieved, which will often take several minutes. Until the myocardium presents a healthy pink appearance, the resumption of normal activity either spontaneously or following electrical or chemical stimuli will rarely occur.

#### *The Treatment of Ventricular Fibrillation and Asystole*

If after massage lasting several minutes the heart beat has not returned spontaneously, and if the examination of the heart through an opened pericardium shows that asystole is present, 5-10 c.c. of 10% calcium gluconate, or half this quantity of 10% calcium chloride, may be injected into the left ventricle. This will often initiate spontaneous contractions. If, however, ventricular fibrillation is present, defibrillation should be carried out. An electrical current of 110 volts at 1-3 amperes is applied to the heart muscle in the form of single or repetitive shocks lasting 0.1 second, by 2 large electrodes wrapped in cloth soaked in saline. The myocardial fibres are thrown into a refractory state simultaneously and remain quiescent for a short period. The sino-atrial node, because it usually recovers its excitability most rapidly, once again emits a regular impulse and initiates sinus rhythm. If defibrillation by single or repetitive shocks is unsuccessful, the injection of calcium gluconate should be tried. Electrical defibrillation is acknowledged as a good and effective treatment for ventricular fibrillation, but a defibrillator is often not available when required.

When the ventricle starts to fibrillate the muscle undergoes coarse uncoordinated contractions which are visible and palpable through the pericardium. Before this event the heart muscle has usually been exposed to a period of anoxia which has caused damage to the muscle cells and, therefore, to their membranous covering. This membrane has now become more permeable and begun to leak negative charges through its surface at various points. These areas become ectopic foci and initiate action potentials and consequently waves of muscular contractions, which pursue devious paths around the ventricles, following routes where the muscle has come out of its refractory period. There is no coordinated muscular contraction and no perfusion of blood through the coronary arteries; consequently a profound anoxia rapidly ensues until the whole muscle membrane is damaged and undergoes widespread repetitive firing. This causes localized weak muscular contractions seen as ripples along the surface of the muscle, and coarse fibrillation changes into fine fibrillation.

The basic aim in cardiac resuscitation, whether fibrillation or asystole exists, is to oxygenate the myocardium by pulmonary ventilation and cardiac massage, and to allow time for the muscle membrane to re-establish its selective permeability to ions. When this is achieved and a resting membrane

potent  
contra

The  
fully k  
fluid a  
ability  
up of  
this m  
A low  
to cau  
exhibi  
left ve  
fact th  
beat re  
centra  
tende

In th  
advoca  
procaine  
analge  
membr  
contra  
resume  
ensue.  
be ren  
quent  
prolon  
admit  
local a

Care  
tion, is  
ectopic

The  
increas

It is  
how i  
because  
surgery  
by som  
to the  
to han  
most i  
of the  
fall on  
between

In the  
torn u  
cathe  
retropu  
material  
it will

\* A  
Durban

potential is built up, sinus rhythm is likely to initiate regular contractions.

The part played by calcium ions in muscular activity is not fully known, but the presence of calcium in the extracellular fluid assists in maintaining the integrity and selective permeability of the muscle membrane, and so facilitates the building up of the appropriate ionic concentrations on both sides of this membrane—which is essential for muscular contractions. A low concentration of calcium in extracellular fluid is known to cause repetitive firing in nerve and muscle tissue, as exhibited in tetany. The injection of calcium ions into the left ventricle stimulates the myocardium to contract and the fact that calcium ions can also induce a fibrillating heart to beat regularly is demonstrated in case 3. An increased concentration of calcium ions, if present in the coronary circulation for prolonged periods, will, however, increase the tendency towards fibrillation.

In the absence or failure of a defibrillator some authorities advocate the use of a local analgesic such as 10 c.c. of 1% procaine injected into the left ventricle. The effect of local analgesics is to stop the transfer of ions across the muscle membrane. Muscular fibrillation is stopped but so is muscular contraction. It is hoped that when normal conductivity is resumed after dispersal of the local analgesic sinus rhythm will ensue. This method can undoubtedly be successful and should be remembered as an alternative, but the heart may subsequently be difficult to start and massage may have to be prolonged. This difficulty is demonstrated in case 1 although, admittedly, 2% lignocaine is a very strong concentration of local analgesic.

Cardiac massage, while necessary to maintain the circulation, is an undesirable mechanical stimulus which can promote ectopic rhythms and which can also damage the myocardium.

The action of adrenaline on a healthy heart in addition to increasing the rate and force of contraction, is to increase

the consumption of oxygen, reduce the refractory period of the muscle, and predispose to ectopic rhythms. It is therefore not surprising that when adrenaline is injected into a heart in asystole, ventricular fibrillation often occurs. If the myocardium is anoxic, fibrillation is more likely than ever to occur. The association of adrenaline with fibrillation is illustrated in the above 3 cases. The use of this drug in treating cardiac arrest, where the whole purpose is to restore regular contractions, is surely unwise, and particularly so when a defibrillator is unavailable. Yet adrenaline is probably the most commonly used drug in the treatment of cardiac arrest.

The use of intracardiac solutions of nor-adrenaline stimulates the myocardium to contract although the tendency to produce fibrillation is less than with adrenaline. Therefore, nor-adrenaline in doses of 1-2 c.c. of a 1:10,000 solution may be tried in cases of asystole when the other methods, detailed above, have had no success.

The mortality after cardiac arrest is generally very high indeed. The unsuspected anoxia which might have caused the arrest, might also have affected the heart and brain in an irreversible manner in some cases. In many cases, however, prompt and effective action will surely reduce the mortality.

#### SUMMARY

Three cases of cardiac arrest are reported and certain aspects of the management of cardiac arrest are discussed, viz the diagnosis of cardiac arrest, cardiac massage, and the treatment of ventricular fibrillation and asystole.

I should like to thank Dr. H. Grant-Whyte, Head of the Department of Anaesthesia, King Edward VIII Hospital, for his interest and advice, and Dr. S. Disler Medical Superintendent, King Edward VIII Hospital, for his permission to publish the cases.

#### REFERENCES

1. Milstein, B. B. (1956): Ann. Roy. Coll. Surg. Eng., 2, 69.
2. Katz, G. (1955): S. Afr. Med. J., 29, 1065.
3. Rainer, E. H. and Bullough, J. (1957): Brit. Med. J., 2, 1024.

## INJURIES TO THE URETHRA\*

J. D. JOUBERT, F.R.C.S., F.R.F.P.S., M.B., Ch.B., B.A., Cape Town

It is not my intention to go into all the details regarding how injuries of the urethra can be sustained and treated, because these details can be found in most text-books of surgery. Suffice it to say that, apart from injuries caused by some mishap during instrumentation (and this can happen to the best and most careful surgeon who has the misfortune to handle a difficult stricture at the bulb or bladder neck), most injuries of the posterior urethra are caused by fractures of the pelvis, and those of the anterior urethra by some fall on a sharp or cornered object, which imprisons the penis between the pubis and the object.

#### SPLINTING OF THE URETHRA

In the typical case the patient with a fractured pelvis and torn upper urethra desires to pass urine, but cannot. On catheterization a little blood-stained urine, lying in the retroperitoneal space, might be drawn off, and if a radio-opaque material is injected through the catheter (e.g. uriodone) it will be found on X-ray examination not to be filling the

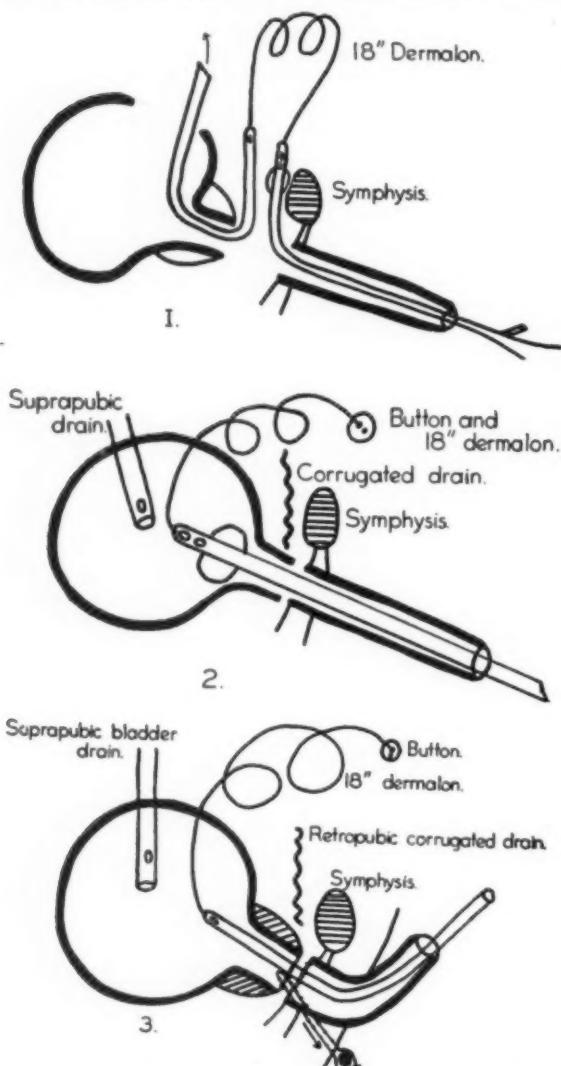
bladder, but to be diffusely and irregularly spread in the pelvis.

The case is an emergency, and, if the patient will stand the operation, his pelvis must be explored as soon as possible and the bladder opened through an extraperitoneal approach. A thin Foley's catheter e.g. size 16F, is passed up the urethra, its end grasped in the retropubic space and pulled out over the symphysis pubis. A Jacques catheter is passed through the bladder down the prostatic urethra, its point is also grasped in the retropubic space and likewise pulled out from underneath the symphysis pubis (Fig. 1). A thick 18 inch length of dermalon on a needle is stitched to the point of the lower Foley's catheter, pushed through the lower eye of the catheter, and firmly tied round the catheter. The other end of the dermalon is tied round the Jacques catheter, pulled up into the bladder, cut off the catheter, threaded on a long needle which carries it through the bladder and abdominal walls, and the dermalon end is now secured to a button to prevent it from being accidentally pulled down and out.

The Foley's bag is now blown up and, by pulling on the catheter from below, the prostatic urethra is approximated

\* A paper delivered at the South African Medical Congress, Durban, September 1957.

to the membranous urethra (Fig. 2). Should the bulb burst and the catheter come out (an accident which has happened to me on several occasions) the very sick patient need not be taken back to the theatre to re-insert the catheters by re-opening the abdomen, but the catheter is pulled out until the dermalon presents at the external meatus, it is cut



*Fig. 1.* Catheters passed from above and below with dermalon tied to their eye ends. The lower catheter can now be pulled up into the bladder across the defect in the posterior urethra.  
*Fig. 2.* Foley's bag blown up, catheter pulled on to approximate torn ends of urethra. 'Safety' dermalon thread lies curled up on abdomen.

*Fig. 3.* Catheter again anchored by means of a transfixing dermalon stitch curled up on the abdomen plus a dermalon stitch through the apex of the prostate, coming out on the perineum and there tied over a rubber tube. The ruptured ends of the urethra can, therefore, be approximated easily, but firmly and accurately.

off from the catheter and stitched into a new catheter, which is then easily pulled up into the bladder by pulling on the dermalon on the abdominal wall. The bladder is closed round a tube and the retropubic space drained with a corrugated rubber. The fractured pelvis is treated by an orthopaedic surgeon if one is available, shock is combated and antibiotics prescribed.

The posterior urethra will tolerate such splintage without stricture formation and the catheter can be kept in position for a few weeks. After removal of such a catheter and waiting for a week or two before negotiating the healed or healing urethra, one always feels a bit anxious about whether in fact the join will be found to be negotiable.

The following steps are now followed after the urethra has been splinted for 2-3 weeks:

1. The retropubic drain and bladder drain have been removed during the first week or 10 days so that by now there is no suprapubic leakage. The dermalon thread comes through a small fistula, but no leakage takes place past it.

2. The Foley's catheter, with dermalon attached, is pulled out below, the dermalon cut loose from it, and its upper and lower ends are tied loosely over the pubis, the patient passing urine past it without discomfort.

3. At weekly intervals, catheters are passed up the urethra alongside the dermalon. If tortuosity or stricture formation prevents this, the dermalon ring is cut, the end threaded through the tip of the catheter, tied, and by joint pushing and pulling, the catheter is easily advanced into the bladder and the stricture dilated. A fresh and longer piece of dermalon can at any time be tied to the old piece, pulled through, and made to replace the previous length.

4. Only when the ruptured urethra is well healed and consolidated and when catheters and sounds pass with ease and without fear of disrupting the uniting area, is the dermalon cut and removed.

#### RUPTURED URETHRA IN BOYS

The above scheme works well in an adult with a big urethra, but when one is treating small boys, one finds that the urethra is so thin that it will not take a Foley's catheter, and, with no bulb to pull the upper urethra down to the membranous urethra, one finds a gap in the urethra retropubically, through which up to  $\frac{1}{2}$  inch of the bare catheter can sometimes be seen. If one depends on a fibrous tissue scaffolding and epithelialization of it, one must of necessity get a tortuous troublesome stricture, requiring repeated difficult dilatations for years under general anaesthesia. Children are usually not brought for regular treatment, but come back when the stricture is already impassable, even by a filiform catheter. Under these circumstances the suprapubic approach has to be repeated, to relieve a full bladder full of sepsis and sometimes full of stones or gravel.

The ideal method in all these urethral ruptures would be to do end-to-end suturing, and some urologists do this. But this is not always an easy procedure; it entails a difficult perineal approach through a vascular area, into very much traumatized and bleeding tissues where stitches tend to pull out, and in addition the patient is often badly shocked from his fractured pelvis and/or accompanying injuries.

A simple yet most efficient way of handling such a rupture in a small boy is the following:

1. Thread a catheter through the distal urethra and then up into the bladder by the same manoeuvres as already outlined (Fig. 1).

2. Leave a long piece of dermalon on the abdomen for the same purpose as described for adults, i.e. to enable one to guide new catheters and dilators back into the bladder.

3. Transfix the apex or distal torn end of the prostate with

dermalon two ends curved just to the dermalon way apart on the threads.

The dermalon is also

In t

The Al  
day of  
The In  
day ho  
cases a

No d  
admiss  
states a  
psychos  
men an  
moreov  
window  
and dra

Desp  
number  
back o  
attempt  
are on

This  
of acut  
achieve  
a great  
Every d  
and in v  
ing of t  
priate b  
among  
expected  
A sec  
open he  
attenda  
possible  
dynamic  
includin

A thi  
behavio  
mind we  
and com  
delusion  
patient,  
without

TAR

The fol  
by the  
operation

Fees for

1. Jo  
(b) Vi

dermalon stitches, one on either side of the catheter, pass the two ends of the stitch on the right side through the eye of a long curved skin needle and with this transfix the perineum, entering just to the side of the membranous urethra. Tie the two ends of dermalon over a piece of rubber tubing on the perineum, in this way approximating the urethral ends. Repeat this procedure on the left side (Fig. 3). After about a fortnight the dermalon threads are cut in the perineum and removed.

The catheter is kept in longer, and the manoeuvre of pulling the dermalon, which is tied to its end, down the urethra, etc., is also carried out here.

In the last case of a child that I treated in this way, a

boy of 4 years, the result was excellent; no dilatations were necessary, evacuating urethrograms showed a straight posterior urethra and the stream was excellent. I intend adopting this manoeuvre in future also in the adult urethra, in addition to the Foley's catheterization.

I can recommend these manoeuvres not only for their simplicity of execution, but also for the gratifying results.

The diagrams were prepared and photographed by Mr. McManus, by kind permission of Prof. J. H. Louw, Department of Surgery, University of Cape Town.

### ALLAN MEMORIAL INSTITUTE: AN OPEN MENTAL HOSPITAL

D. EWEN CAMERON, M.D., *Department of Psychiatry, Allan Memorial Institute, McGill University, Montreal*

The Allan Memorial Institute was established in 1943. From the day of its establishment it has operated on an entirely open basis. The Institute now has a clinical division of 88 in-patients and 48 day hospital patients and through these facilities pass about 1,000 cases a year.

No doors are locked and no type of patient whatever that seeks admission is refused. Paranoid schizophrenics, alcoholics, senile states and maniac-depressive patients as well as a great many psychoneurotics are admitted. Not only are the wards open but men and women patients live on the same wards. The hospital, moreover, does not have the usual security precautions—the windows are not barred, ordinary glass is used and window-shades and drapes are present in every room, even in the most acute wards.

Despite this the occurrence of violence is very low indeed. A number of patients do run away, but practically every one comes back on the persuasion of his relatives. We ourselves do not attempt to bring back a patient who runs away since all admissions are on a voluntary basis.

This successful operation of an open hospital for the full range of acute and chronic psychiatric patients of all kinds has been achieved primarily by the following means: First giving the patients a great deal of responsibility for the maintenance of good behaviour. Every day we have patient meetings in which the nurses participate and in which there is open discussion of all aspects of the functioning of the hospital and in particular upon the matter of inappropriate behaviour. This results in the anticipation being set up among the patients that a reasonably high level of behaviour is expected, and this anticipation exerts a most considerable influence. A second factor which determines the successful operation of the open hospital is that every member of the staff—nurses, aides, attendants, nurses, interns and resident staff—is as fully trained as possible in an understanding of individual dynamics and of group dynamics. Movies showing various aspects of human behaviour, including the dynamics of some of the major emotional responses, seminars and lectures are used for the purposes of this training.

A third factor is that we have come to recognize that aberrant behaviour should be dealt with on an emergency basis. With this in mind we have developed a particularly rapid system of observation and communication so that the facts concerning the appearance of delusional activity, of excitement or suicidal ruminations in a patient, can be detected as early as possible and communicated without delay to those individuals who are ultimately responsible

for making a decision. Once that information is in their hands it is anticipated that rapid action will be taken, and we have found that when this is done not only can the aberrant behaviour be brought to a quick end, but also because it is brought to a quick end there is no transmission of it to other patients in the group. On all wards we have both men and women patients. This we have found to be still another factor in raising the general level of behaviour. Men and women in each other's presence tend to react to the situation by normalizing their behaviour as far as possible. Our older fears that disturbing relationships might develop between men and women patients living on the same floor proved quite groundless.

Finally, we endeavour to create in the Institute an atmosphere which is conducive to learning. We put before the patients the fact that their presence in the Institute constitutes an opportunity for them to learn about human nature and, in particular, to learn about their own problems. Psychodynamic movies and discussions are carried on regularly for the patients.

As the time comes for them to go home a special discharge discussion group is set up, where what they have learned about themselves is talked over by the patients together with proposals and plans to apply when they get home what they have learned.

At the same time a relatives' discussion group is in operation, attended by the relatives of the patients. At this further discussions among the members of the patient's family take place on how best to reorganize the home situation so that the patient and the family can reach a more satisfactory home life than before.

From the very outset of his stay in hospital, moreover, the patient is encouraged to go home on visit. His stay, in any case, in the Institute is usually short, averaging about 6 weeks, since we have a large number of ambulant services to which the patient is transferred as soon as the acute phase of his illness is over. Among these is the Day Hospital, which permits the patient to receive treatment during the daylight hours and to go home at night-time. All these measures have resulted in the creation of a general atmosphere of freedom, with a sense of responsibility, and an intention to take the period of hospitalization as an unusual and valuable opportunity not only to free himself of his symptoms, but also to learn about himself, about his relations to others, and about human nature in general.

These measures have made it possible for us to say at the end of 15 years that the opening of the hospital has not only been highly successful, but has been a most important factor in the favourable response of the patients to treatment.

### OFFICIAL ANNOUNCEMENTS : AMPTELIKE AANKONDIGINGS

#### TARIFF OF FEES FOR APPROVED MEDICAL AID SOCIETIES

The following amendments to the Tariff have been approved by the Executive Committee of Federal Council and come into operation as from 1 September 1958:

##### Fees for General Practitioners

1. Johannesburg Municipal Area only:
- (b) Visits to residence, nursing homes and hospitals £1 0s. 0d.

#### TARIEF VIR GOEDGEKEURDE MEDIESE HULPVERENIGINGS

Die volgende wysisings in die Tarief is deur die Uitvoerende Komitee van die Federale Raad goedgekeur en is van toepassing met ingang 1 September 1958.

##### Gelde vir Algemene Praktisyns

1. Johannesburg Municipale gebied alleen:
- (b) Besoek aan woning, verpleeginrigtings en hospitale £1 0s. 0d.

## 2. Rest of Union and South West Africa:

(b) Visits to residence, nursing homes and hospitals (having regard to the fees for private patients in the area) 15s. to 17s. 6d.

3. Subsequent visits at nursing homes and hospitals to be the usual fee per visit or 5 times the appropriate fee per week, whichever is the less.

4. (a) Night Visits: The fee shall be £1 7s. 6d. for Johannesburg and £1 5s. 0d. for the rest of the Union and South West Africa.

(b) Weekend visits: In the case of an initial call received and made during a weekend (1 p.m. Saturday through Sunday) or a Public Holiday the General Practitioner may in his discretion charge a visiting fee of up to 25s., it being recognized that the medical aid society may pass the additional fee to the member. For the purpose of this paragraph an initial call means one for a patient who has not been seen during the preceding six days.

It must be emphasized that when the fee for weekend visits was under discussion with the representatives of medical aid societies the view of the societies was opposed to a weekend fee because it would mean that patients would be penalized for illnesses contracted during that time. The societies only agreed to the weekend fee after the members of the Central Committee for Contract Practice had assured them that cases of genuine illness would always receive consideration and members of the Association are requested to view this concession by the medical aid societies in that light.

Medical House  
Cape Town  
25 August 1958

L. M. Marchand  
Associate Secretary

## MEDICAL AID SOCIETIES REMOVED FROM THE LIST

The name of the following society has been removed from the list of approved medical aid societies and the members are no longer entitled to the preferential tariff:

Caltex Medical Aid Society (S.A.), P.O. Box 714, Cape Town.  
L. M. Marchand  
Associate Secretary

Medical House  
Cape Town  
3 September 1958

## 2. Res van Unie en Suidwes-Afrika:

(b) Besoek aan woning, verpleeginrigtings en hospitale (met inagneming van die geldte vir private pasiënte in die gebied) 15s. tot 17s. 6d.

3. Vir daaropvolgende besoekke by verpleeginrigtings en hospitale word die bedrag vir 'n gewone besoek gevra of 5 maal die bedrag in die betrokke gebied per week wat ook al die mindere is.

4. (a) Nagbesoek: Die geldte sal wees £1 7s. 6d. in Johannesburg en £1 5s. 0d. in die res van die Unie en Suidwes-Afrika.

(b) Naweek-besoek: In die geval waar 'n eerste oproep in die naweek (van 1 nm. Saterdag af deur Sondag) of op 'n openbare vakansiedag ontvang en 'n besoek afgelê word kan die algemene praktisyen na sy goeddunne 'n bedrag van tot 25s. vra, maar dit word erken dat die mediese hulpvereniging die addisionele bedrag na die lid kan oordra. Vir die doel van hierdie paragraaf beteken 'n eerste oproep een in verband met 'n pasiënt wat gedurende die vorige ses dae nie gesien was nie.

Dit moet beklemtoon word dat toe die geldte vir naweekbesoek onder besprekking met die verteenwoordigers van mediese hulpverenigings was, die verenigings teen sodanige geldte gekant was omdat na hulle mening dit sou betekende dat pasiënte vir siektes wat deur die naweek opgedoen is beboete sou word. Die verenigings het alleen tot naweekgelds toegestem nadat die lede van die Sentrale Komitee in verband met Kontrakpraktijk hulle verseker het dat gevallen van werklike siekte altyd in ag geneem sou word. Lede van die Vereniging word dus versoek om die toegewing van die verenigings uit hierdie oogpunt te beskou.

L. M. Marchand  
Medesekretaris

Mediese Huis  
Kaapstad  
25 Augustus 1958

## MEDIËSE HULPVERENIGINGS VAN DIE LYS GESKRAP

Die naam van die volgende vereniging is van die lys van goedgekeurde mediese hulpverenigings geskrap en lede is nie langer op die voorkeurtarief geregtig nie:

Caltex Medical Aid Society (S.A.), Posbus 714, Kaapstad.  
L. M. Marchand  
Medesekretaris

Mediese Huis  
Kaapstad  
3 September 1958

## ERE-PENNINGMEESTER SE SPESIALE FONDS : HONORARY TREASURER'S SPECIAL FUND

Met hartlike dank word die volgende skenkings erken : The following donations are gratefully acknowledged:

Voorheen erken/Previously acknowledged	£ s. d.	£ s. d.
Dr. J. W. Harris, Port Elizabeth	2 2 0	3 3 0
Dr. J. D. Meyer, Bloemfontein	5 5 0	2 2 0
Drs. Mann and Steyn, George	4 4 0	8 8 0
Dr. G. P. J. Scheepers, Joubertina	3 3 0	2 2 0
Dr. E. E. Schulenburg, Clocolan	2 2 0	3 3 0
Drs. B. Agranat, S. J. Lachman and E. M. Witz, Parktown North	15 0 0	3 3 0
Dr. L. Schrire, Cape Town	5 5 0	2 2 0
Drs. F. E. Bamford and T. H. Whitsitt, Pietermaritzburg	5 5 0	10 10 0
Drs. H. Penn and A. E. Amoils, Johannesburg	10 10 0	5 5 0
Dr. G. W. Brammer, Germiston	2 2 0	2 2 0
Dr. D. F. Marais, Witbank	5 0 0	3 3 0
Drs. F. N. Gillwald and H. Levon, Welkom	5 5 0	5 5 0
Dr. M. Tonkin, Johannesburg	5 5 0	2 2 0
Anonymous, Durban	26 5 0	3 3 0
Dr. A. L. Agranat, Johannesburg	10 10 0	5 0 0
Dr. A. M. Whitaker, Claremont	2 2 0	2 2 0
Dr. M. H. Fainsinger, Johannesburg	7 7 0	2 2 0
Dr. A. ffolliott, Port Elizabeth	2 2 0	5 0 0
Dr. B. Morris, Durban	2 2 0	3 3 0
Drs. G. de V. Theron, G. J. Luyt, S. de W. van der Spuy en P. D. Nel, Worcester	8 8 0	£971 4 0
Totaal op 30/8/1958—Total as at 30/8/1958		

Met ha  
maand  
Benevol  
Gelofte

Dr. J.  
Immelman  
Hamman  
Colin an  
non Brit  
Member  
der Ned  
Mrs. F.  
Mrs. L.  
Ferreira  
Dr. D.  
Purcell,  
Mev. D.  
Mnr. H.  
Albertry  
Scholtz,  
J. de Be  
Louw, E.  
Mev. F.  
M. Grub  
Hertzog  
Mrs. A.  
Dr. R. S.  
Theron,  
Goldber  
A. Smith  
Dr. G. H.  
H. Smith  
mekaar-  
de Kock  
Dr. Herr  
S.A., Is

DEAN OF  
Prof. B.  
The Direc  
Dean of  
Faculty of  
year.

Profess  
High Sch  
of Cap  
qualified  
He serv  
officer in  
tal, Cap  
entered  
George, C  
the war y  
S.A.M.C.  
the rank  
Field An  
Deputy  
Medical  
U.D.F.  
Downing  
fall of To  
was a pr  
and Germ  
to allied  
tioned in  
return to  
Johannes

In 1946  
Superint  
interested

## THE BENEVOLENT FUND : DIE LIEFDADIGHEIDSFONDS

Met hartlike dank word die volgende skenkings gedurende die maand Augustus 1958, erken: The following donations to the Benevolent Fund during August 1958 are gratefully acknowledged:

*Geloftekaart ter nagedagtenis aan: Votive cards in memory of:*

Dr. J. S. du Toit *deur* by Dr. and Mrs. A. H. Tonkin, Dr. J. P. Immelman, Hoofkantoorpersoneel, Dr. Visser, Mnr. en Mev. Dirk Hamman, Dr. en Mev. L. M. Marchand, Hannah and Gladys, Colin and Rae, Jan, Mona and Linda, Mr. D. H. R. Hill, Dr. Vernon Brink, Mnr. H. R. Malan en Dr. A. L. Geyer, President and Members, Northern Transvaal Branch, M.A.S.A., Ambassadeur der Nederlanden te Pretoria en Kaapstad, Nasionale Pers Beperk, Mrs. F. H. P. Creswell, Dr. and Mrs. A. W. Sichel, Dr. and Mrs. Lance Impey, Dr. F. K. te Water Naudé, Nerina Ferreira, Anton, Jacqueline, Mr. and Mrs. H. J. Louw, Dr. D. P. Marais, Mr. and Mrs. L. Flederman, Dr. F. W. F. Purcell, Mnr. J. de la R. du Toit, Anoniem, Kaapstad, Mnr. en Mev. D. S. Preller, Mnr. E. J. Wilken, Mev. C. N. Groenewald, Mnr. H. R. van der Poel, Mrs. S. Dakin, Dr. en Mev. C. F. Albertyn, Mnr. en Mev. P. M. Lombard, Mnr. en Mev. Pepler Scholtz, Mrs. Comrie-Sharp, W. G. de Beer, Dawie de Beer en J. de Beer, Mnr. D. P. de Klerk en Van Gend, Dr. en Mev. M. S. Louw, Bonusbeleggings-Korporasie van S.A. Beperk, Minister en Mev. F. C. Erasmus, Dr. en Mev. H. F. Verwoerd, Dr. and Mrs. C. M. Grundlingh, Dr. E. G. van Hoogstraten, Dr. en Mev. D. Hertzog, Mnr. en Mev. N. C. Krone, Dr. R. Lane Forsyth, Dr. and Mrs. A. T. F. Maske, Dr. Ruby G. Sharp, Mev. J. E. Conradie, Dr. R. Schaffer, Reger en Mev. H. A. Fagan, Dr. and Mrs. R. Theron, Dr. and Mrs. J. P. de Villiers, Dr. H. P. M. Steyn, Dr. A. I. Goldberg, Mnr. N. J. le Roux, Mnr. P. A. Weber, Mnr. en Mev. J. A. Smith, Mnr. en Mev. R. L. Barry, Sen. en Mev. D. H. van Zyl, Dr. G. H. Hansmann, Mnr. en Mev. W. Andrag, Mr. and Mrs. W. H. Smith, Mev. E. Barnard, Dr. R. G. Roberts en gesin, Helpmekaar-Studiefonds, Dr. C. A. van der Merwe, Dr. en Mev. J. K. de Kock, Dr. P. A. Smuts, Dr. and Mrs. J. D. M. Claassens and Dr. Herman Claassens, Sanlam, The Ophthalmological Society of S.A., Issie, Cora, Freda, Mimmie en Nita, David en Jeanette

le Roux, Mnr. en Mev. J. de V. Truter, Dr. G. Odendaal, Voorstitter, Bestuurder en Lede van die Klub Here Sewentien, Dr. J. A. Currie, Dr. W. H. Opie, Dr. and Mrs. Jack Holloway, Ella, Mabel en Everard, Dr. J. Struthers, Dr. R. L. H. Townsend.

Dr. F. O. Fahrns *deur* by Dr. D. P. Marais, Medical Officers of Health (State Medicine) Group of M.A.S.A.

Minister J. G. Strydom *deur* by Dr. en Mev. E. G. van Hoogstraten, Mev. E. J. du Toit.

Dr. Edward Walker *deur* by Dr. R. L. H. Townsend. Vera Clarke *deur* by Dr. Vernon Brink. Dr. and Mrs. Moon *deur* by Dr. Shirley Cole.

Total amount received from Votive Cards: £187 0s. 9d.

*Services rendered to:*

Family of Dr. W. Lohse by Drs. Verster, Enslin, Hesselberg, Sacks and Jacobsz.

Mrs. Berman and son by Drs. C. Fourie and R. Momberg.

Dr. M. Jooste by Drs. D. R. Haynes, W. J. Mostert and S. E. Phillips.

Dr. D. Vollet by Drs. E. G. Wilbraham, D. A. Edington and H. Wormald.

Mrs. R. Thomas by Mr. Lee McGregor.

Dr. P. H. Harley by Drs. J. H. B. Samuels, W. Lewin and B. Bellon. Colin Gamsu by Dr. L. S. Meyerovitz.

Total amount received for Services Rendered £51 16s. 0d.

*Donations:*

	£	s.	d.
Drs. J. R. Saunders, I. E. Meyer, J. S. M. Sililo, T. H. Crouch, D. S. McCall, C. L. Lauf, D. M. Lithgow, J. A. Gill . . . . .	4	4	0
Basutoland Division, O.F.S. & B. Branch, M.A.S.A.	4	4	0
Medical Wives' Association, Port Elizabeth . . . . .	123	4	0

Total amount received from Donations . . . . . £131 12 0

Grand Total £370 8s. 9d.

## UNIVERSITY NEWS

## DEAN OF THE FACULTY OF MEDICINE, UNIVERSITY OF CAPE TOWN

Prof. B. Bromilow-Downing, previously professional assistant to the Director of Hospital Services, Cape Province and Assistant Dean of the Faculty of Medicine, was appointed Dean of the Faculty of Medicine, University of Cape Town at the end of last year.

Professor Bromilow-Downing, who is 46, was educated at Grey High School, Port Elizabeth and became a student at the University of Cape Town where he qualified in medicine in 1935. He served as resident medical officer in the Peninsula Hospital, Cape Town, and then entered private practice at George, Cape Province. During the war years he served with the S.A.M.C. in North Africa with the rank of Major in the 19th Field Ambulance, and later as Deputy Assistant Director of Medical Services, 2nd division U.D.F. Professor Bromilow-Downing was captured at the fall of Tobruk in June 1942 and was a prisoner-of-war in Italy and Germany where his services to allied P.O.W.'s were mentioned in despatches. On his return to the Union he commanded the military section of the Johannesburg General Hospital.

In 1946 Professor Bromilow-Downing was appointed Medical Superintendent of the Frere Hospital, East London, where he interested himself in the teaching of interns, nurses and midwives.



Prof. B. Bromilow-Downing

In 1956 he was appointed professional assistant to the Director of Hospital Services, Cape Province.

Professor Bromilow-Downing was appointed Assistant Dean of the faculty of medicine, University of Cape Town, in 1957 to aid Professor van den Ende in his onerous duties. When Professor van den Ende died in June 1957, Professor Bromilow-Downing was appointed Acting Dean of the Faculty and was nominated by the University of Cape Town as a member of the South African Medical and Dental Council.

Professor Bromilow-Downing is a member of the Medical Association of South Africa and was Hon. Secretary of the South Western Districts Division of the Association 1936-37 and Hon. Secretary of the Border Branch 1946-49. In 1949 he was Hon. Treasurer of the Medical Congress in East London. He is now a member of the Branch Council of the Cape Western Branch.

As a past President of the East London Rotary club Professor Bromilow-Downing is still an active Rotarian and is also a member of the regional council of the Cape region of the South African Red Cross. Professor Bromilow-Downing is interested in amateur theatre and has not only acted in many productions, but also produced plays and devised and produced annual pantomimes in East London.

## WERNHER AND BEIT PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF CAPE TOWN

Dr. Arthur Kipps, who, on the death of Professor van den Ende in June 1957, was appointed Acting Head of the Department of Bacteriology by the University of Cape Town and Acting Head of the Virus Research Unit by the S.A. Council for Scientific and Industrial Research, was appointed Wernher and Beit Professor of Bacteriology at the beginning of this year.

Professor Kipps, who is 45, was educated at the South African

College School, Cape Town, and became a student at the University of Cape Town where he qualified in medicine in 1936. He served his internship at the New Somerset Hospital, Cape Town, and for the next 9 months was engaged in private practice. In October 1938 Professor Kipps was appointed Junior Lecturer in the Department of Pathology at the University of Cape Town (under Prof. B. J. Ryrie). From 1943 to 1946 he served in the Medical Corps of the Union Defence Force, first as a G.D.O. and then as a pathologist in charge of hospital laboratories in the Union, Egypt and Italy. In March 1946 he returned to the former department at the University of Cape Town and in 1947 joined the Department of Bacteriology under the late Prof. M. van den Ende.

Between 1948 and 1951 Professor Kipps went into part-time private practice as a pathologist, but kept a part-time post in the Department of Bacteriology. After the establishment of the Joint Pathological Service in 1951, Professor Kipps returned to a full time post as senior assistant to Professor van den Ende.

While on the staff of the Department of Bacteriology Professor Kipps was in charge of the routine diagnostic section and was also concerned with the development and establishment of the Blood Transfusion Service and Rh Service for Groote Schuur Hospital and other teaching hospitals in the Cape Peninsula. He served for 3 years on the Western Province Blood Transfusion Service and



Dr. Arthur Kipps

became Chairman of the Medical sub-committee. On 2 occasions, while Professor van den Ende was away, Professor Kipps took over his teaching duties for the M.B., Ch.B. students and for the courses in Bacteriology for the B.Sc. and D.P.H. students, for periods of 6 months and 1 year.

When Professor van den Ende was first appointed Dean of the Faculty of Medicine, University of Cape Town, Professor Kipps was made Acting Head of the Department of Bacteriology and assumed all teaching and administrative duties. At this time, to aid Professor van den Ende who was beginning to show physical signs of the illness he bore with such fortitude, Professor Kipps was appointed Assistant to the Dean and was gradually privileged to accept more and more of his departmental and teaching duties as Professor van den Ende became more occupied in the Senior Councils of the University.

In 1955 Professor Kipps was appointed chairman of a sub-committee on postgraduate training by the Faculty of Medicine, and he has now assisted in the organization of the first 8 refresher courses for general practitioners. In 1956 Professor Kipps obtained the degree of M.D. at the University of Cape Town.

As a member of a small unit of workers concerned in fundamental virological study, Professor Kipps has interested himself chiefly in the indigenous viruses of South Africa. In this work he has cooperated closely with the Onderstepoort group of Veterinary research workers. The viruses of bluetongue disease in sheep and the group of viruses isolated from cases of lumpy skin disease in bovines, have been his special interest.

Professor Kipps is a member of the Medical Association of South Africa, the Royal Society of South Africa, the Society of Pathology and Bacteriology of Great Britain and has been a member of the Council of the Cancer Clinic Association since its inception. Until recently Professor Kipps also served on a consultant panel for therapeutic substances in the South African Bureau of Standards.

## PASSING EVENTS : IN DIE VERBYGAAN

**Mr. B. C. Murless, F.R.C.S., F.R.C.O.G.,** is visiting Britain from 26 August 1958 till 24 October 1958. He has been invited to lecture at London University and will visit different centres in the United Kingdom.

\* \* \*

**Dr. Dennis M. Krikler, M.R.C.P.,** formerly senior medical registrar, Groote Schuur Hospital and University of Cape Town, has commenced practice as a consultant physician at 329 Robinson House, Union Avenue, Salisbury. Telephones: Rooms 2-8904; home Ask 2-9092.

\* \* \*

**Research Forum, University of Cape Town.** The next meeting of Research Forum will be held at noon on Wednesday 1 October 1958 in the large A. floor lecture theatre, Groote Schuur Hospital, Cape Town. Dr. G. Selzer will speak on Poliomyelitis viruses, Adaption and Combination. All interested are invited to attend.

\* \* \*

**Northern Areas Division, Cape Western Branch.** Prof. James T. Louw will address the monthly meeting of the Division on 'The significance of bleeding after the menopause' in the Old Council Chamber, Klosser Street, Parow, at 8.15 p.m. on Tuesday, 23 September 1958. The lecture will be illustrated with cine films. Refreshments will be served.

\* \* \*

**Afdeling Noordelike Gebiede, Tak Wes-Kaapland.** Prof. James T. Louw sal die maandelikse vergadering van die Afdeling toespreek oor 'Die betekenis van bloeding na die menopause' in die ou Raadsaal, Klosserstraat, Parow, om 8.15 nm. op Dinsdag, 23 September 1958. Die lesing sal geïllustreer word met kinemafilms. Verversings sal bedien word.

\* \* \*

**Southern Transvaal Sub-group of Neurologists, Psychiatrists and Neuro-Surgeons.** Prof. Dr. H. C. Rümke will address a meeting, which is being held in conjunction with the Southern Transvaal Branch of the Medical Association on 1 October 1958 at 8.15 p.m. at Medical House, Esselen Street, Johannesburg. The subject will be 'Everyday Psychological Problems in Modern General Practice'.

The profession is cordially invited to attend. Refreshments will be served.

\* \* \*

**Dr. J. K. Lundie, M.B., B.Ch. (Rand), D.M.R.D. (Lond.),** commenced practice as a radiologist with Dr. A. Wolpowitz and Dr. J. L. van Rhyn on 1 July 1958 at 110 Medical Centre, 319 Pretorius Street, Pretoria. Telephones 2-4512 and 3-5440.

**Dr. J. K. Lundie, M.B., B.Ch. (Rand), D.M.R.D. (Lond.),** het begin praktiseer as 'n radioloog saam met Dr. A. Wolpowitz en Dr. J. L. van Rhyn te Mediese Sentrum 110, Pretoriusstraat 319, Pretoria, op 1 Julie 1958. Telefoon 2-4512 en 3-5440.

**Training in Psychiatry at McGill University.** Attention is directed to the article *Allan Memorial Institute: An Open Hospital* in this issue of the *Journal* (p. 921) and to the reference on page xxvii to a diploma course and other courses in Psychiatry at the McGill University, Montreal. Associated with these courses are honoraria and bursaries, and applications for openings for next year are now being considered. Applicants should write to the Chairman of the Department of Psychiatry, McGill University, Montreal, Canada.

**Cape Western Branch: Alan Sichel Golf Trophy.** A Stableford bogey competition will be held at the Mowbray Golf Club on Wednesday 17 September. Entries should be sent to Dr. J. L. van Selm, Southern Life Buildings, 101 St. George's Street, Cape Town (telephone 2-1779); or Dr. Jack Gelb, Commercial Union Buildings, St. George's Street, Cape Town (2-8122); or Dr. Ryno Milner, Southern Life Building, 101 St. George's Street, Cape Town (2-1938). As a large turn-out is expected entries should be sent in as soon as possible.

**Medical Graduates' Association, University of the Witwatersrand.** The Annual Alumni Dinner will take place this year on Wednesday, 1 October, at the Auto Club, Killarney, Johannesburg. The dinner will be in honour of the classes of 1933 and 1934. An additional function to be performed at the dinner will be a presentation to Prof. R. A. Dart, who is retiring from the staff after 36 years of

service.  
drinks)  
ates' A  
(mornin

South A  
recent n  
decided  
request  
Decemb  
Journal  
tains m  
Subscri  
12s. 6d.  
in due d  
  
Suid-Af  
onlangs  
besluit

We reg  
Fuller,  
of the B  
Cape, w  
Town, a  
Campaign  
despatch

Maybak  
new me  
40% w  
dextran,

The ch  
to give r  
embolis  
trast to  
presence  
patency  
medium  
is the ca  
excessive  
viscous  
period a  
medium  
be studie

Wyeth L  
tion sup

After  
fected a  
material

A Con  
Prize P  
son H  
Figure  
Londo

This co

service. Doctors' wives are welcome. Tickets £1 10s. each (including drinks). For full particulars apply to the Secretary, Medical Graduates' Association, Medical School, Johannesburg. Phone 44-7040 (mornings).

\* \* \*

*South African Journal of Laboratory and Clinical Medicine.* At a recent meeting of the Head Office and Journal Committee it was decided to approach members of the Medical Association with a request to consider subscribing to the 2 last issues (September and December) of the quarterly *Journal* for this year. The quarterly *Journal* is the scientific publication of the Association and it contains much material which will be of great interest to members. Subscriptions for the September and December issues will be 12s. 6d. A further notice regarding next year's issues will appear in due course.

*Suid-Afrikaanse Tydskrif vir Laboratorium- en Kliniekwerk.* Op 'n onlangse vergadering van die Hoofkantoor- en Tydskrifkomitee is besluit om lede van die Mediese Vereniging te nader met die

versoek om in te teken op die laaste 2 uitgawes (September en Desember) van die bogenoemde kwartaalblad. Hierdie *Tydskrif* is by uitstek die wetenskaplike blad van die Vereniging en dit bevat veel stof wat van belang vir lede sal wees. Intekengelde vir die September en Desember nommers beloop 12s. 6d. 'n Verdere kennisgewing aangaande volgende jaar se uitgawes sal eersdaags verskyn.

\* \* \*

*Dr. Theunis Fichardt.* M.D., D.Sc., M.Med. (Rad.T.), D.M.R.E., Director, Department of Radiotherapy, Pretoria General Hospital and University, has been awarded a World Health Organization Fellowship to study the medical uses of atomic energy, with special reference to 2000 Curie telecobalt therapy and other radio-active isotopes. He will be attending the second United Nations International Conference on the Peaceful Uses of Atomic Energy in Geneva from 2 to 12 September 1958, and will be visiting radiotherapeutic clinics in Paris, United Kingdom, Denmark, Sweden and Germany. He will be accompanied by his wife and they will be away for 4½ months.

## OBITUARY, DR. THOMAS ARTHUR FULLER

We regret to announce the death on 1 September 1958 of Dr. T. A. Fuller, of Rondebosch, Cape. Dr. Fuller, who was formerly head of the Department of Anaesthetics at Groote Schuur Hospital, Cape, was educated at the South African College School, Cape Town, and at Edinburgh University. He served in the East African Campaign and at Gallipoli in World War I and was mentioned in despatches. After the war he became a lecturer in Pathology at the

University of Cape Town, but he relinquished this post to go into private practice. In 1937 Dr. Fuller went to London where he specialized in anaesthetics and in 1946 was appointed head of the Department of Anaesthetics at Groote Schuur Hospital. He retired in 1952 and returned to private practice. Dr. Fuller leaves a widow and 2 children. An in memoriam notice will be published in a later issue of the *Journal*.

## NEW PREPARATIONS AND APPLIANCES : NUWE PREPAREATE EN TOESTELLE

### DIAGONAL VISCOSUS

Maybaker (S.A.) (Pty.) Ltd., in announcing the introduction of a new medium for hysterosalpingography, 'Diaginol' Viscous brand 40% w/v solution of sodium acetrizoate with the addition of dextran, supply the following information:

The chief advantages of 'Diaginol' Viscous are that it is unlikely to give rise to a foreign-body reaction and there is no danger of embolism should intravasation occur. It provides sufficient contrast to show the size, shape and position of the uterus and the presence of any filling defects due to fibroids or carcinoma. The patency or occlusion of the tubes is shown and the viscosity of the medium is such that flow through the tubes is not unduly rapid (as is the case with plain aqueous solutions), while at the same time excessive pressure is not needed for its injection. The medium is viscous enough to remain in the uterine cavity for a reasonable period after withdrawal of the cannula, and, provided that sufficient medium has entered the peritoneal cavity, its distribution can readily be studied for a period of some 30 minutes.

\* \* \*

### POLY MAGMA

Wyeth Laboratories in introducing this new antidiarrhoeal preparation supply the following information:

After several years of research, Wyeth Laboratories have perfected a new substance for the treatment of diarrhoea. This new material is an activated attapulgite (Claysorb Wyeth) specially

processed by a heat treatment. Its distinction lies in its absorptive properties, which are 5 times as great as those of kaolin, which has been used since ancient times for the treatment of diarrhoea. The trade name of this new product is *Polymagma*.

*Polymagma* is a new formulation to provide more potent, more effective, lower-dose antidiarrhoeal therapy. In addition to the new powerful adsorbent Claysorb it also contains two synergistic antibiotics with a broadly effective antibacterial spectrum and with essentially no risk of inducing sensitivity to systemic antibiotics. Extensive clinical investigation has shown *Polymagma* to be a distinct advance in antibacterial, adsorptive, and protective therapy. Exceptional palatability is a feature for patients of all ages.

Each 30 c.c. (1 fl. oz.) contains 300 mg. of dihydrostreptomycin base (as sulphate), 120,000 units of polymixin-B sulphate, 3 g. of Claysorb (Activated Attapulgite, Wyeth), and 270 mg. of pectin in a vehicle of special alumina gel.

The indications for *Polymagma* are: (1) The symptomatic treatment of diarrhoea. (2) The specific treatment of bacterial diarrhoea caused by organisms sensitive to streptomycin or polymyxin.

*Dosage.* For adults the suggested dosage is 4 teaspoonfuls (20 c.c.) 3 or 4 times daily before meals, according to response. This dosage provides from 0.6 to 0.8 g. of dihydrostreptomycin and from 240,000 to 320,000 units of polymixin daily. For infants and young children, this dosage should be adjusted according to weight and response. A suggested initial dose is 2 teaspoonfuls (10 c.c.), and thereafter 1 teaspoonful 3 times daily.

Supplied in bottles of 3 fl. oz.

## REVIEWS OF BOOKS

### A STUDY OF PORTAL HYPERTENSION

*A Contribution to the Study of Portal Hypertension.* Jacksonian Prize Essay Royal College of Surgeons 1956. By Alan Henderson Hunt, M.A., D.M., M.Ch., F.R.C.S. Pp. xi+230. 120 Figures. 40s. net + 1s. 9d. Postage Abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1958.

This contribution to the study of portal hypertension received the Jacksonian prize of The Royal College of Surgeons for the

## : BOEKRESENSIES

year 1956. It reflects Mr. Hunt's unique experience in the management of portal hypertension and is based on an analysis of 250 personal cases. It is free from speculation and has as its purpose the examination of new findings and assessment of new methods of treatment. Therein lies its great value because cases were in no way selected, and included many desperately ill persons in the terminal stages of their disease.

The normal and applied anatomy of the portal vein and hepatic

artery is described and abnormalities found during the course of portal and splenic venography are illustrated.

The cases are classified on an anatomical basis—32 with extra-hepatic obstruction and 218 with intrahepatic obstruction—and these are further subdivided according to the cause of the obstruction. A concise account is then given of the various abnormal porto-systemic communications which develop in portal hypertension.

Mr. Hunt lays great stress on the concept of portal stasis as opposed to portal hypertension and points out that pressure readings alone may give an erroneous impression as far as porto-systemic anastomoses are concerned. Other factors which are as important and require investigation are the speed of flow in the portal vein and portal stagnation.

The clinical manifestations and investigation of a case of portal hypertension are clearly set out and the preparation of patients for operation is fully discussed.

The emergency treatment of haemorrhage from varices by means of a Sengstaken-Blakemore tube and by various types of operations is described and the definitive treatment of the condition itself is dealt with in detail. The author prefers portacaval anastomosis or, if this is impossible, lienorenal anastomosis, above all other types of treatment, but emphasizes that further developments, especially along the lines of arteriolization of the liver, may replace present day methods.

The complications of operation and effects of porto-systemic anastomosis are outlined and a special chapter is devoted to the choice of operation.

The technical details of the operative treatment and full descriptions of porta-caval anastomosis, lienorenal anastomosis and proximal gastric transection and resection are set out in the 4 appendices. These illustrated descriptions are excellent.

This is an excellent monograph and one which should be in the possession of every physician and surgeon. It is of particular value to the surgeon who is interested in portal hypertension. The book is strongly recommended.

J.H.L.

#### THE FARMER'S LEGAL AND FINANCIAL HANDBOOK

*The Farmer's Legal and Financial Handbook.* By David Shrand, M.Com., A.S.A.A., C.A. (S.A.) and Gordon Davis, Q.C., M.A. (Oxon), LL.B. (S.A.). Pp. vi+265. 29s. post free. Legal and Financial Publishing Company, P.O. Box 3461, Cape Town. 1957.

With the prominent position which farming occupies in the Union a book which sets out clearly the many legal and financial measures affecting farmers which are contained in the Statute Book will be welcomed. A glance at the table of contents of this new book will show the wide field covered and where necessary the text is illustrated by references to cases which have been settled.

Although the book was obviously written for the practical farmer as well as for the lawyer and accountant, it will no doubt also be of interest to the many doctors who are farmers in what spare time they may have.

A.H.T.

#### FELDMAN'S ROENTGENOLOGY OF THE DIGESTIVE TRACT

*Clinical Roentgenology of the Digestive Tract.* 4th Edition. By Maurice Feldman, M.D. Pp. xi+776. 728 Illustrations. 120s. Baillière, Tindall and Cox Ltd. 1957.

The 4th edition of Feldman's clinical gastro-enterology shows considerable improvement on the previous edition. The double layout of the text conforms to the modern trend and makes for easier reading.

The illustrations of the radiographs, as in most American text-books, are reproduced in the dye-positive form. This entails a certain amount of artificial emphasis which is well used in the section on the biliary tract.

The references are extensive and not wholly confined to sources emanating from the American continent. This book does in fact present an extremely adequate survey of recent literature, rather than the crystallized opinion of the author on the various problems facing diagnostic radiologists.

Defects common to the sections devoted to the various systems, are a lack of an adequate approach to the problems of technique

associated with the investigation of the respective systems. The lack of emphasis on routine erect serial views of the dye-filled gallbladder is in the reviewer's opinion, a serious omission.

Inadequate attention is paid to the more recent developments and technique in examination of the abdominal blood vessels, in relation to identification of intra-abdominal masses.

The section on the gastro-intestinal tract is competently dealt with and the less common lesions are adequately detailed. More attention to the problem of hiatus hernia, together with an authoritative opinion of this subject, would have been welcome in view of the continual controversy associated with this particular problem. This edition has much to commend it, and the publishers are to be congratulated on the improvement of presentation.

It should however be borne in mind that the student and the younger radiologist will again be disappointed by the appearance of yet another book devoid of a vital and detailed review of diagnostic techniques.

M.D.

#### MODERN TRENDS IN GASTRO-ENTEROLOGY

*Modern Trends in Gastro-Enterology.* (Second Series.) Edited by F. Avery Jones, M.D., F.R.C.P. Pp. xix+416+(23). 143 Figures. 84s. 6d. + 1s. 11d. London: Butterworth & Co. (Publishers) Ltd. South African Office: Butterworth & Co. (Africa) Ltd., P.O. Box 792, Durban. 1958.

After 6 years Dr. Avery Jones has produced another volume of articles on selected subjects of gastro-enterological interest. Although there are several American and Scandinavian contributors, this book primarily reflects British and Commonwealth views. South Africa is represented by Dr. W. P. U. Jackson of Cape Town, with a definitive chapter on massive intestinal resection.

A wide range of topics is covered and Dr. Avery Jones who has provided well for most of his readers. There are several chapters of basic physiological interest, but on the whole the emphasis is clinical. The general discussions on antibiotics and corticosteroids in relation to the alimentary tract are most useful, and the reviews of carcinoid tumours, the Peutz-Jeghers syndrome, the blind-loop syndrome and massive intestinal resection cannot be bettered. There is a comprehensive account of gastro-intestinal exfoliative cytology from the Chicago school. Acknowledging that it is impossible to please everybody, this selection should not disappoint any one; it is good to know that a third series is promised.

Together with the first series, this volume provides an unexcelled source of reference for many of the difficult and interesting problems of organic gastro-intestinal disease, and will as such be of greatest use to the specialist. Psychosomatic aspects are somewhat played down—while the editor does not dispute the importance of the emotional load affecting the alimentary tract he finds it 'difficult to believe that it is a primary aetiological factor for organic conditions such as peptic ulcer and ulcerative colitis'. Perhaps in the next edition an advocate of the psychosomatic school could be invited to review advances in that field.

D.M.K.

#### RECENT ADVANCES IN OTO-LARYNGOLOGY

*Recent Advances in Oto-Laryngology.* 3rd Edition. By F. Boyes Korkis, M.B., F.R.C.S., D.L.O. Pp. ix+438. 144 Figures. 60s. net. London: J. & A. Churchill Ltd. 1958.

This volume is the third edition of a book known to all English speaking otologists. It is, however, more than a new edition. It is an entirely new word edited by Mr. F. Boyes Korkis. He has been responsible for the entire contents.

The author is an authority on blast-injury of the ears and the chapter on this subject is very full and contains all the latest available information and should be most useful for all practising otologists. The chapter on audiology is concise and comprehensive, whilst the problem of the deaf infant is dealt with in detail.

The pathology and treatment of Meniere's disease receives full attention whilst the latest advances in tympanoplasty and mobilization of the stapes are adequately covered. Naturally the reader in search of the very newest information must still rely on specialist journals.

Laryngeal carcinoma is dealt with in some detail, as this subject is still of the utmost importance. The controversy on whether prophylactic neck dissection should be performed, receives the

fullest coverage. The author's own experience is also given.

This book is a valuable addition to the library of any medical student or practitioner.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

The author's personal copy is now in my hands.

fullest consideration and here again the author writes from his own extensive personal experience. This chapter is perhaps the most valuable in the book; the entire subject of therapy, whether surgical, radiation or combines, is exhaustively dealt with. The question of operation in cases of tumour of the hypopharynx is also discussed in detail.

This book can be recommended without hesitation to all Ear, Nose and Throat specialists. It is well up to the standard of the first and second editions so ably edited by Mr. R. Scott-Stevenson.

B.T.B.

#### MEDICAL MANAGEMENT OF CANCER

*The Medical Management of Cancer.* By Henry D. Diamond, M.D., F.A.C.P. Pp. vii+179. 40 Figures. 86·75. New York and London: Grune & Stratton, Inc. 1958.

The author describes the role of the physician in the treatment of certain types of cancer. While only those kinds of cancer which are treated by medical means are discussed, the natural history of certain specific cancers is detailed.

Two broad groups of cancer are considered, viz. those in which medical therapy is the primary treatment and those in which this form of treatment is only used after surgery has been attempted and has failed.

The drugs considered fall into 3 main groups, viz. hormones, alkylating agents and ionizing radiations linked to various elements such as I 131 for thyroid carcinoma and radioactive gold (AU 198) for ascites caused by ovarian cancer.

It is an important book, up-to-date and concise; the future of oncology is within its covers.

T.S.

#### PSYCHIATRIST AND PAINTINGS

*The Door of Serenity.* By Ainslie Meares, M.B.B.S., B.Agric. Sc., D.P.M. Pp. 110. 24 Coloured Plates. 21s. net. London: Faber & Faber. 1958.

An unfortunate printer's error occurred when the above-mentioned book was reviewed in the *Journal* of 6 September 1958 (32, 902). The author of the book (wrongly given as Ainslie Meyers) is Ainslie Meares.

#### LECTURES ON PSYCHOSOMATICS

*Psychosomatics. A Series of Five Lectures.* Edited by J. Booij. Pp. viii+125. 2 Figures. Amsterdam, London, New York, Princeton: Elsevier Publishing Company. 1957.

These 5 lectures were delivered at a meeting of the Dutch Psychiatric and Neurological Society held in conjunction with the Association of Dutch Internists in 1954. We are not told why their publication in the form of a monograph was delayed until August 1957. The purpose of the series, namely, 'to inform readers abroad of current views in Holland', is further defeated by the poor standard of English in the translation. Some sentences are incomprehensible, and in others considerable guess-work is necessary. In other instances the meaning was obvious, but neologisms abound like 'aggressivity', 'attachedness', 'conditional reflex', 'psychopathized individual', etc.

In my opinion the 3 noteworthy features in the book from the clinicians viewpoint are: (1) The neat presentation of the concept of 'syndrome shift' and 'syndrome suppression', and the fact that the good clinician, even if his efforts result at best in syndrome suppression or shift, can still accomplish something by ensuring a shift in a direction acceptable to the patient and his environment. (2) The concept of a specific personality type developing a specific psychosomatic disease is challenged when tested against the clinical experience of internal medicine. (3) The results of psychotherapy in the 'psychosomatoses' when ultimately reduced to their essence, reveal the time-honoured conclusion that one third of patients recover, one third partially recover and one third make no improvement or deteriorate.

F.F.

#### HEALTH SERVICES IN NORWAY

*Health Services in Norway.* By Karl Evang. Pp. 161. Illustrations. Oslo: The Norwegian Joint Committee on International Social Policy. 1957.

This most interesting and informative publication sets out very clearly and in a most readable manner the present-day health services of Norway.

With the distances to be covered, the geographical features of high mountains and deep valleys and the climatic conditions which exist, it could only have been possible to provide these services on the basis of using the general practitioner in both the preventive and curative fields.

Since 1956 a National Insurance scheme has been made applicable to the whole population, but the costs of the medical service provided are not wholly met by funds available from this scheme, the balance being provided by the patient himself. The practitioner, be he general practitioner or specialist, is remunerated on the basis of 'services rendered' and not on a capitation fee basis as is applicable in Britain. Notwithstanding this arrangement the hospitals as such are free to all.

It is rather surprising to learn that dental caries is a problem in Norway, especially with the high consumption of fish by this population. No mention is made of any deficiency in the fluorine content of the public water supplies.

The tragic account of the diphtheria epidemic occurring in an unimmunized population during the German occupation could not better drive home the lessons of the importance of full immunization against this killing disease.

Provision for the aged makes interesting and enlightening reading and it is heartening to observe the important part that local authorities are expected to, and do, play in catering for and providing the social services for their own local population groups.

The photographs are excellent, the type clear and legible and the translator must be complimented for a most creditable bit of work.

I can heartily recommend this little publication as a means of enlightenment into just how a small nation of three and a half million people have solved or are solving their socio-medical problems with benefit to all as is reflected in the vital statistics reports of this beautiful country.

E.D.C.

#### THE CARE OF LABORATORY ANIMALS

*The UFAW Handbook on the Care and Management of Laboratory Animals.* 2nd Edition. (Greatly Enlarged.) Joint Editors: Alastair N. Worden, M.A., B.Sc., M.R.C.V.S., F.R.I.C. and W. Lane-Petter, M.A., M.B., B.Chir. Pp. xix+951. Illustrations. 70s. net. London: The Universities Federation for Animal Welfare. (Distributor: E. & S. Livingstone Ltd., Edinburgh and London.) 1957.

The Universities Federation for Animal Welfare (UFAW) is an organization of scientists and other professional men and women and university students in a number of British Universities that strives to promote humane behaviour towards wild and domestic animals. Apart from the humanitarian point of view, it is essential that laboratory animals be given proper care to be in the best condition for medical research.

Such rapid advances are being made in this field that a greatly enlarged edition of the UFAW handbook is now available, 10 years after the first edition appeared. Advances in care and management of laboratory animals are being reported all the time from many countries in a variety of journals, and more than 70 experts with special experience have contributed to this volume the best facts and hints available at this time.

In part I, comprising 16 chapters, there are general considerations applicable to all laboratory animals. In part II (chapters 17-75) more than 50 species are considered individually; there is much information on less common species as well as on the more common species of laboratory animals. This book must be available to all workers in institutions where animals are kept and used for research work and the teaching of students. Technicians who have more dealings than anyone else with laboratory animals should be properly trained and be particularly well versed in the subject matter and applications of this book. There are numerous illustrations of animal houses and their interior equipment, of animals in different stages of development and activity, diagrams of useful apparatus for laboratory confinement and handling of animals, many useful tables with all sorts of summarized information, and examples of microscopic preparations. The book is a most instructive study and reference volume and a mine of information.

N.S.

## CORRESPONDENCE : BRIEWERUBRIEK

## RADIATION HAZARDS

**To the Editor:** Dr. Weinbren has jumped to the defence of Professor Oosthuizen<sup>1</sup> when no such defence was necessary nor called for by my letter.<sup>2</sup> I was merely seeking for clarification of two apparently conflicting statements. My letter was not intended as an attack on an authority of such great eminence as Professor Oosthuizen, and I would have preferred to have this clarification from Professor Oosthuizen himself. It was an honest attempt to clear up some of the confused thought on the question of radiation. I do feel that without being unduly sensitive I can expect Dr. Weinbren to refer to me by the correct form of address.

Dr. Weinbren brushes aside very lightly the damage done to patients, who have been irradiated for superficial malignancies, as justifiable. I can hardly conceive that the loss of an eye or an ear or a nose or even so unessential an organ as the trachea, from over-irradiation, can be considered such a trivial affair as compared with what was once a small rodent ulcer or carcinoma. He says that at worst it can only cause some local necrosis. This I consider a rather naive statement. Furthermore, Dr. Weinbren seems to think that I never see radiation damage following diagnostic X-rays. This I can assure you is not so. I have not only seen diagnostic radiation damage, but have actually seen carcinoma develop in these diagnostic radiation burns.

I do not wish to prolong this discussion, but feel Dr. Weinbren should not dismiss the plastic surgeon quite so readily. We see far more cases of over-radiation than the average radiotherapist is aware of. I feel that the only way to overcome this is by means of combined clinics between the plastic surgeon, the dermatologist and the radiotherapist, as is practised with such successful results in the much-despised National Health Services in Great Britain.

Such a clinic has, to my great satisfaction, come into being in Durban. I can assure you that there is no confusion whatsoever in my mind regarding the two types of radiation procedure. I was merely seeking clarification of two apparently conflicting statements which I could not reconcile. Dr. Weinbren is jumping to a very hasty conclusion, as there is no confusion whatsoever in my mind. I merely said that I had seen cases of over-radiation in skin malignancy.

I feel that Dr. Weinbren is trying to draw a red herring across the trail. Of course the problem of over-radiation is becoming an increasing problem in spite of what Dr. Weinbren says. When I wrote my original letter I was not discussing irradiation. In fact, I don't think I even mentioned it. My only regret is that Professor Oosthuizen has not seen fit to give his own explanation, which I am sure I should find thoroughly acceptable.

In conclusion, when I want a lecture on radiation I shall write to Dr. Weinbren.

B. W. Franklin Bishop

711 Payne's Building  
West Street  
Durban

26 August 1958

<sup>1</sup> 1. Weinbren, H. (1958): S. Afr. Med. J., 32, 604.  
<sup>2</sup> 2. Bishop, B. W. F. (1958): *Ibid.*, 32, 460.

## ELEKTRIESE SKOKBEHANDELING

**Aan die Redakteur:** Die inleidingsartikel aangaande „Elektriese Skokbehandeling“ in die uitgawe van 23 Augustus<sup>1</sup> verdien ‘n mate van kommentaar.

Met die stelling dat dit hoofsaaklik bedoel is vir manies-depressieve psigose, involusieve psigose en die katatone vorm van schizophrenia kan saamgestem word. Ook is dit goed en tydig dat daarop gewys word dat dit die uitsonderlike geval is van psigoneurose wat daardeur verlig word. Maar die mening dat ontspanningsmiddels onwenslik is, kan nie so maklik aanvaar word nie. Die aard, sterke en aanwending van die elektriese stroom het, soos algemeen bekend is, betreklik min uitwerking op die sterke van die toniese of kloniese fase van die toeval. Dit word wel dikwels te kenne gegee dat die sogenaamde glissando tegniek, of ‘n monofasiese stroom, ontspanningsmiddels onnodig maak, tog bly dit ‘n reel in vooraanstaande sentrums soos Tara-Hospitaal en Groote Schuur-Hospitaal, om ontspanningsmiddels te gebruik by elektro-serebrale behandeling, omdat dit besef word dat daarsonder die moontlikheid van komplikasies groter is.

Kalinowsky<sup>2</sup> se mening aangaande ontspanningsmiddels mag nou beskou word as verouderd en Seager<sup>3</sup> se bevindings aangaande

die waarde van behandeling met en sonder ontspanningsmiddels word deur homself erken as nie konklusief nie.

Ter wille van die publiek wat beskerm moet word teen onnodige gevare by die uitvoering van enige behandeling, voel ek dat dit meer as wenslik is om ontspanningsmiddels in alle gevalle toe te dien. Dit is egter hoogs nodig dat psigiatres behoorlik opgelei word aangaande hierdie metode van behandeling, en dit moet betrek word dat die gebruik van ontspanningsmiddels nie meer algemeen is in ons hospitale vir geestesversteurde nie.

Die gebruik van ‘n narkotiseur by elektro-serebrale behandeling onder pentothal en scoline, behoort net ‘n uitsondering te wees waar die hospitaal-fasilitete en verplegingsdiens doeltreffend is. Dit veronderstel natuurlik dat die psigiatre soveel ervaring besit as wat die publiek geregtig is om te verwag in die geval van enige spesialiste.

Ten slotte neem ek graag die kans waar om te versoek dat die term ‘skokbehandeling’ eens en vir altyd moet verban word en dat ons, sowel as die publiek, ‘n term soos ‘elektro-serebrale behandeling’ moet aanvaar.

Mediese Sentrum 1002

J. S. du T. de Wet

Kaapstad.

6 September 1958

1. Van die Redaksie (1958): S. Afr. T. Geneesk., 32, 843.  
2. Kalinowsky, L. B. (1949): Bull. N.Y. Acad. Med., 25, 541.  
3. Seager, C. P. (1958): J. Ment. Sci., 104, 206.

## SPONTANEOUS INTRACRANIAL HAEMORRHAGE

**To the Editor:** We have read with great interest the article in the *Journal by Mr. K. Lewer Allen on Cerebral Vascular Disease*.<sup>1</sup> Several of our colleagues have approached us regarding certain statements in this article which they have accepted as facts, whereas it appears to us that Mr. Allen clearly indicates that they are personal theories. From these theories he develops certain suggestions in regard to the management of spontaneous intracranial haemorrhage due to ruptured aneurysm which require careful analysis.

In our opinion an aneurysm ruptures because its weak wall cannot sustain the repeated pulsation of blood at intra-arterial pressure<sup>2</sup> of over 1600 mm. of water. The external pressure surrounding the aneurysm, as measured by lumbar and ventricular puncture, never approaches this figure; it is usually in the range of 300 to 400 mm. of water after a severe haemorrhage. We therefore fail to see how the external pressure on the aneurysmal sac can play any significant role in the prevention of a further bleed. Our experience has shown that arterial spasm is a far more significant factor in the prevention of further haemorrhage. The object of surgical treatment must be to prevent a second bleed if possible, an event which may be equally or more disastrous than the first. Therefore if surgery is contemplated, then to withhold such treatment, once a patient is fit for surgery, must be incorrect practice when based only on theory.

Secondly, we would join issue with Mr. Allen on the whole principle of carotid ligation. The object of this operation is not merely to relieve the intrinsic blood pressure in the aneurysmal sac, but—far more important—to divert the flow of blood from a direction into the mouth of the sac and towards its fundus, to a direction past the mouth of the sac. In fact, an essential of this procedure is to maintain the intrinsic arterial blood pressure as close as possible to its pre-operative level in order that the collateral circulation may remain effective.

As to the diminished reserve ‘in the face of subsequent aging or disease or stress’, the follow-up studies on these patients show that it is a thoroughly tested, very safe and most gratifying method of treatment.<sup>3</sup> Of course this implies that patients for this operation are selected with meticulous care, since it is not a procedure which can be applied indiscriminately to all cases of aneurysmal bleeding. Also the post-operative management demands constant vigilance, especially in regard to the maintenance of blood pressure.

J. Block

R. Lipschitz  
H. E. Reef

Department of Neurology  
Baragwanath Hospital  
Johannesburg  
2 September 1958.

1. Allen, K. L. (1958): S. Afr. Med. J., 32, 821.

2. Johnson, H. C. (1953): Surgery, 33, 537.

3. Harris, P. and Udvarhelyi, G. B. (1957): J. Neurosurg., 14, 180.

Kaaps

From

There is  
surgery  
common  
70% of  
of these  
whom  
regress  
numbers  
the abs  
cant. P  
problem  
Materi

In A  
Cardiac  
purpose  
valvoto  
became  
ing the  
Very fe  
not able  
worker.

Thus,  
we were  
(43%) P  
poor res  
of the o  
An imp  
result, b  
a poor r  
the clin  
often c  
Figures  
the pro  
could be

1. ‘Po  
2. Ina  
3. Lat  
4. Rep  
5. Pe  
tence.  
6. Co